
fssai
FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA
Inspiring Trust, Assuring Safe & Nutritious Food
Ministry of Health and Family Welfare, Government of India
GUIDANCE DOCUMENT
FOOD SAFETY MANAGEMENT SYSTEM
FOOD INDUSTRY GUIDE TO IMPLEMENT GMP/GHP REQUIREMENTS
BAKERY & BAKERY PRODUCTS

Food Industry Guide to implement GMP/GHP requirements

Bakery & Bakery Products

Based on Part II of Schedule 4 of Food Safety & Standards (Licensing & Registration of Food Businesses) Regulation, 2011

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Disclaimer

It is to be noted that this guidance document does not intend to replace any legal provision of Food Safety & Standard Act, 2006 & regulations thereunder. Further, wherever the provision of this document conflicts with Part II of Schedule 4 of Food Safety &Standard (Licensing and Registration of Food Businesses) Regulation, 2011 or any other regulation under Food Safety & Standard Act, 2006 for that matter, the provision given in the regulations shall prevail.

PREFACE

This Guidance Document on Food Safety Management System (FSMS) is prepared with the intent to provide implementation guidance to food businesses (especially the small and medium businesses) involved in manufacturing, packing, storage and transportation of bakery & bakery products, to ensure that critical food safety related aspects are addressed throughout the supply chain.

This document contains practical approaches which a business should adopt to ensure food safety; however, manufacturers may adopt higher or stringent levels, depending on the needs & complexity of operation. The use of this guidance is voluntary and food business operators may comply with the requirement of the regulation according to other established best practices.

It is important that food handlers involved in the bakery supply chain are trained appropriately to implement the good manufacturing practices and good hygiene practices to ensure food safety.

We acknowledge the contribution of the experts from the technical panel of FSSAI along with CHIFSS (CII-HUL Initiative for Food sciences) team for developing this document.

Pawan Agarwal – CEO, FSSAI

SCOPE

This document is applicable for food businesses involved in the bakery sector. The major activities in the bakery industry comprise of the following:

a) Receiving & storing of raw material.
b) Manufacturing & packing of bakery products.
c) Storage/Warehousing & Transportation of bakery products

All the above activities may or may not be carried by the same facility. Hence, based on their position in the food supply chain, a bakery industry could use the guidance document accordingly as per the operations applicable to them. This document provides guidance for FSMS implementation for the following bakery products.

a) Biscuits
b) Bread
c) Cakes & pies

The document is divided into five main sections. The first section gives an overview of the bakery industry in India along with the rising need for food safety in the sector. The second section contains guidance for implementation of good manufacturing practices and good hygiene practices as outlined in Part II of Schedule 4 of Food Safety & Standard (Licensing & Registration of Food Businesses) Regulation, 2011. The document has specified requirements where compliance is essential and obligatory for food businesses and in such cases the word "shall" is used. In addition certain good practices are also strongly advised for food safety operation & in such case "should" is used.

The third section of this document is recommendatory in nature and provides the basic knowledge and criteria for implementation of Hazard Analysis and Critical Control Point (HACCP) system by the food businesses. This section includes the manufacturing flow chart & two tables: Hazard Analysis and HACCP Plans. Tables of Hazard Analysis is expected to help the industry to identify the food safety risks related to each processing step, to identify the Critical Control Points (CCPs) along with recommended corrective actions and other related information. Sample HACCP Plans have been taken from some established practising bakery industries. These plans could be used as reference by the industry and modified or altered based on their operations.

The fourth section provides an inspection checklist for Food Business Operator to audit their facility & operations. The FBOs can evaluate themselves based on the indicative scoring. The last section gives important templates and forms which will be required by FBOs to maintain the records. This includes mandatory forms as prescribed by FSSAI & few templates for maintaining records of processes critical for food safety.

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A. OVERVIEW OF BAKERY INDUSTRY IN INDIA

A. OVERVIEW OF BAKERY INDUSTRY IN INDIA

The bakery sector comprises the largest segment of the food processing sector in India and offers huge potential for growth. In India there are more than 2,000 organised or semi-organised bakeries producing around 1.3 millions tonnes of the bakery products and 1,000,000 unorganised small-scale bakeries producing 1.7 millions tonnes. Bread and biscuits are the most popular bakery items and account for 80% of the total market. Not surprisingly, India is the world's second-largest producer of biscuits after the USA. The bakery industry has achieved third position in generating revenue in the processed food sector. The market size for the industry was estimated to be worth US$ 7.6 billion in 2015.

Bakery products are an item of mass consumption in view of their low price and with rapid growth and changing eating habits of people, bakery products have gained popularity among masses. Trends in baking continue toward lighter, healthier products, and those containing allergen-free, organic, and whole-grain ingredients. Interest in inclusions and fortification continues to increase among consumers of baked goods. They include fibre, antioxidants, omega-3 oils, and vitamin and mineral fortifications. The addition of inclusions to baked products requires modifications to the original product formula, thus creating a new product from an existing one. Such modifications can be challenging to bakers as changes in formulation may result in the need for changes to equipment, processes and ingredient costs.

The use of whole and alternative grains and grain products continues to drive new product development. In response to the demand for products that are free from gluten and other allergens, baked goods using flours made from buckwheat, quinoa, millet, amaranth, flax, corn, rice, sorghum, wild rice, and other non-wheat grains remain a popular trend in baking. These flours offer tastes and textures that are uniquely different from wheat flours, which also serve the trend toward more types of artisan and handcrafted breads. Commercial bakeries that produce gluten-free products must maintain strict sanitation standards to avoid contamination if products containing gluten are also produced in the bakery.

Key issues that the industry is facing include the need for improvements in hygienic practices as well as technology apart from availability of skilled manpower at all levels of bakery operations. The lack of technology and upgradation in manufacturing and packaging has been a factor affecting industry growth.

Most of Indian bakeries are either manual or semi-automatic. Increased competition and changing customer choices have induced bakery operators to look for sophisticated baking equipment and technology to sustain growth and improve standards. Bakery skills are in strong demand in the bakery and hospitality industries. The sector reports a strong need for more training institutes which can produce skilled workers who are knowledgeable not only about the trade but are also competent in implementing the food safety and hygiene requirements prescribed in the country's food laws.

B. IMPLEMENTATION GUIDELINES

I. ESTABLISHMENT – DESIGN AND FACILITIES

1. Location and Surroundings

The selection of the right location for the food facility is important to minimize any food safety risk and to ensure that neighboring industries& activities does not become a contamination source due to transferring hazards by wind, water, pollution or increasing the risk of pest infestation. Potential sources of contamination need to be considered when deciding where to locate food establishment, as well as the effectiveness of any reasonable measures that might be taken to protect food.

Location of food premises shall be away from:

- environmentally polluted areas & industrial activities that produce disagreeable or unpleasant odour, fumes, excessive soot, dust, smoke, chemical or biological emissions and pollutants that pose a serious threat to food safety.
- areas subject to flooding.

In case, the food premise is already established and there are other industries producing pollutants, then sufficient measures such as water treatment plant, air filters etc shall be taken to ensure food safety.

The boundaries of the food establishment shall be clearly identified with access control. This is important to avoid the entry of stray animals.

The external area of the food establishment should be free of debris, soild or liquid waste, stagnant water etc to avoid pest harborage & infestation. Grass/planted area inside & outside the food premises, should be regularly tended & well-maintained. Preferably insect repellent plants such as marigold, neem, basil, spearmint etc should be grown in the near vicinity of food establishment.

The manufacturing premise shall not have direct access to any residential area. In case residential area is in the same premises, then the entry & exit to the manufacturing premises shall be separate.

2. Premises & rooms

2.1 Construction, design & layout

The size of the bakery and the equipment layout must either allow access for cleaning around the equipment or the equipment must be moveable. All building materials shall be safe for use near food. They shall not release toxic vapours or toxic materials through contact. The use of materials for ceilings/roofs which because of the environmental conditions are likely to shed particles of paint, plastic, plaster, fibres shall be avoided.

Where steam or excessive humidity occurs some form of natural or mechanical ventilation/extraction should be provided. Alternatively, the provision of additional heat or better insulation may prevent condensation. Where condensation is still occurring due to a

particular process and/or an inherent problem with the design/construction of the building and additional ventilation is impractical the affected areas shall be cleaned and/or redecorated regularly.

Wall, floor junctions should be coved. Overhead services such as cable trays, pipe runs should be kept to minimum and, if possible, a suspended ceiling installed beneath. Pipe and cable runs should have a smooth cleanable finish, U section fitments should be avoided or installed upside down to prevent dust and dirt collecting. Services, light units should be mounted flush to ceilings/ roofs or on rods or cables and preferably not chains. Pipework should not be boxed in because of the risk of infestation.

The layout must provide sufficient space to allow high risk foods to be prepared safely. Construction should be strong & adaptable to the weather of that area. Ledges and inaccessible areas should be kept to a minimum. Premises must be constructed and maintained so as to deny access and harborage to pests.

Possible entry points for pests should be proofed. Holes in the external fabric which could allow pests in should be sealed eg with concrete or cement and if necessary mixed with wire wool. Where pipes, cables, trunking or ducting pass through internal or external walls, all holes and gaps should be filled. External doors should be rodent-proof (eg bristle strips, rubber compression seals for roller shutters, metal kickplates). Windows in other parts of the bakery and ventilation systems may require insect-proofing.

External openings or doors may require proofing against insects (eg insect-proof screen doors, plastic strip curtains, rapid rise doors). The perimeter of the building should be kept clean and tidy. Any such external storage should be kept to a mini- mum as this will provide a harbourage for pests. The areas should be inspected regularly and unnecessary items removed. The perimeter should be free of vegetation with a hard stand or gravel border where possible.

2.2 Internal structures & fittings

It includes floors, walls, ceiling, doors, windows, partitions, overhead fixtures, working surface, stairs, elevators & similar structures.

These shall be soundly constructed. Construction of material shall be

- Durable
- Impervious to food particles, grease & water
- Non-toxic in intended use

Facilitate easy & effective cleaning & maintenance. Where appropriate, all junctions & corners should be rounded in processing area to facilitate effective cleaning. All the joints shall be sealed to avoid entry of pest or provide harborage for pests.

The structures & fittings should not act as a source of contamination such as flaking paint or plaster, seepage which may cause mould growth etc. Structures where glass breakage could result in contamination of food shall be constructed of alternate materials or be adequately protected.

2.2.1 Walls & partitions

Walls & partitions shall be provided to separate operations, wherever required.

Walls shall have smooth surface with no flaking paint or plaster upto a height appropriate to operations (Height of 5 ft is ideal). Emulsion oil paint may be used which are easily cleanable by simple wiping. If tiles are used, they should not be porous with no crevices. Tiles also helps in avoiding seepage, thus prevents mould growth.

SS plate or pipe may be fixed on wall to avoid damage caused to wall by moving trolleys which causes flaking paint or plaster.

They shall be free from flaking paint, plaster etc.

2.2.2 Ceiling & overhead fixtures

Ceiling including false ceiling shall be provided where they are necessary to protect food from contamination. It shall be constructed so as to be gap free and water resistant to prevent entry of dirt, dust and pests. It is recommended to avoid asbestos for ceiling.

They shall have smooth surface with no flaking paint or plaster or loose overhead fixtures.

All overhead fixtures such as fans, tubelight etc shall be well protected to avoid contamination of food.

There should be no loose wires or open electrical points, as these may help in pest movement or accumulation of dirt, dust etc.

Ventilators used for natural ventilation, should be easy to clean.

2.2.3 Floors

Floors shall be non-slippery, maintained in good repair condition and facilitate cleaning. Avoid crevices that may lead to accumulation of dirt, dust and mould growth.

Wall floor junction should be rounded to facilitate cleaning.

Floor shall able to withstand operations, cleaning materials & methods. They should be strong enough to resist heavy equipment, trolley movement etc.

Floors shall have appropriate slope to allow adequate drainage.

2.2.4 Windows

Adequate number of windows, roof vents or exhaust fans should be provided to ensure proper ventilation.

Windows & other openings to the external environment shall be constructed to minimize the accumulation of dirt and shall be fitted with undamaged insect proof screens that are removable and cleanable

Windows shall remain closed and fixed during operations. There should be no crevices in between walls & windows, as these could result in entry of pest.

In case window panes have glass, it should be covered with tampered proof sheet.

Wooden doors/windows should not be preferred as it promotes mould growth, termites with ageing.

2.2.5 Doors

Doors shall have smooth and non absorbent surface.

It shall be closely fitted to avoid entry of pest, dirt, dust etc.Self closing doors with no gap between doors and floors are preferred.

Doors may be fitted with strip curtain, air curtain, wire mesh etc to ensure that pest & other contaminants enter can be restricted in the food handling area.

2.2.6 Food Contact Surface (including working surface)

Food contact surface shall be inert to food, cleaning chemicals under normal operating conditions.

It shall be in sound condition, free from cracks, crevices, open seams etc.

It should be free from sharp internal angles or corners, protruding rivets, nuts & bolts etc.

3. Equipment & containers

3.1 Food handling equipment

Equipment and containers shall be hygienically designed, constructed and maintained in good order and repair. Material of construction shall be non corrosive, non toxic and impervious to grease, food material, cleaning agents etc. The material of construction shall be in accordance with Food Safety & Standards (Packaging & Labeling) Regulation, 2011.

It should be, durable, movable or capable of being disassembled to allow effective maintenance& cleaning. Chipped/enameled containers should not be used. Brass utensils should be provided with inner lining. Gasket made of food grade material should be used for food contact equipment & vessels. Food contact surfaces including seams should be smoothly bonded or maintained so as to minimize accumulation of food particles, dirt, foreign matter etc.Piping and ductwork shall be cleanable, drainable, and with no dead ends.

It should be located /installed in a manner which facilitates cleaning &maintenance. Ideally a distance of 1.5 ft should be maintained in between walls & equipment & in between equipment.

The equipment shall prevent the contamination of product (for example, location of lubricant reservoirs shall not be in close vicinity of the surface directly handling the food).

Fixtures, fittings and equipment that use water for food handling or other activities and are designed to be connected to a water supply must be connected to an adequate supply of water.Equipment should be self draining in wet process areas. And where appropriate, is connected directly to drains. Where possible, CIP (Cleaning In Place) method should be followed.

Equipment should be vented properly to prevent excessive condensation (for example, filler bowls, blanchers, retorts), where applicable

In case of glass containers, care should be taken for cracks & crevices. Glass containers should be limited to certain sections such as packaging. Proper cleaning should be done in case of breakage of glass in food handling area.

Containers are provided with proper fitting cover/lid or with a clean gauge net or other material of texture sufficiently fine to protect the contents completely from dust, dirt etc.

Where chemical additives have to be used to prevent corrosion of equipment and containers, they should be used in accordance with good practice.

Fixtures, fittings and equipment that are designed to be connected to a sewage and waste water disposal system and discharge sewage or waste water must be connected to a sewage and waste water disposal system.

3.2 Food Control and monitoring equipment

The equipment used to cook, heat treat, cool, thaw, store or freeze food shall achieve the temperature as rapidly as necessary & maintain the same.

The equipment shall also be designed to allow temperature & other characteristics (such as RH%, air flow) to be monitored & controlled, wherever required.

3.3 Container for holding waste, non food - chemicals & hazardous substance

These containers shall be

- Clearly identified for their intended purpose
- Suitably constructed of impervious material
- Easy to clean
- Leak-proof
- Provided with cover, preferable foot operated
- located in a designated area
- No pest harbourage

Non food chemicals & hazardous substance shall be closed when not in use and stored separately under lock with access to only authorized personnel.

Chemicals & other hazardous substance should be stored in original containers with label intact.

4. Facilities

4.1 Water Supply

Adequate supply of potable water shall be available. This potable water shall be able to meet the standards of IS:10500& shall be tested semi-annually through a recognized lab. Potable water shall be used for cooking, handling food, cleaning equipment & container which come in contact with food, premises in food handling area.

Only potable water shall be used for processing/cooking, preparing ice & steam which is used as an ingredient; handling raw food or cleaning food contact surfaces/equipment/plant cleaning. If water is recycled, it shall meet the standards of potable water, if used for the activities mentioned above.

Non potable water shall have a separate system. Non potable water shall be identified & shall not connect with or allow reflux into potable water system. Color coding of pipes is recommended.

Storage of water & transferring pipes shall be made of food grade material. Storage containers shall be cleaned periodically.

Water tanks should be suitably covered to prevent access by animals, birds, pests & other extraneous matters.

Water filters shall be regularly changed or effectively maintained.

4.2 Waste disposal and drainage

Waste disposal systems & facilities shall be provided so that there is no risk of contaminating food or potable water supply.

Drains shall be designed to meet expected flow loads, constructed & located so to prevent accumulation and back flow of waste water. Drains should be located so that they can be effectively cleaned & inspected.

Drainage & sewage system shall be equipped with appropriate traps and vents to effectively capture contaminants such as sewer gases, pests etc.Fat traps should be cleaned out regularly outside of production.

Where drainage channels are fully or partially open, they are to be so designed as to ensure that waste does not flow from a contaminated area towards or into a clean area, in particular an area where foods likely to present a high risk are handled.

No manhole should be situated inside any food processing area. Drains like rainwater pipes, if inside, should be constructed of impervious rust proof material and should be covered. These shall not open in food processing area.

There should be facilities for separate storage of biodegradable & non-biodegradable wastes. Wherever existing, refuse stores shall be designed and managed in such a way as to enable them to be kept clean and free form animals and pests.

4.3 Cleaning

There shall be adequate, preferably separate facilities provided for cleaning food, utensils & equipment to prevent contamination.

These facilities shall be –

- Constructed of corrosion resistant material
- Easy to clean
- Adequate supply of hot & cold potable water

The sinks designated for cleaning food material should not be used for hand washing or any other personal activity.

4.4 Personal hygiene & employee facilities

Personal hygiene facilities shall be provided in adequate number& size.It shall be suitably designated & located. Personal hygiene facilities majorly include -

4.4.1 Hand washing facilities

Adequate number, size and means of hygienically washing, drying and where required sanitizing hands shall be provided.

It includes –

- Wash basins (preferably SS should be used for wash basins outside production area, ceramic may be used in wash rooms etc, where chances of contamination of food, due to chipping is low)
- Drying facilities (cloth towel should not be used, paper towel may be used, hot air blower is preferred which is required to dry hands, especially space between fingers)
- Soap (liquid soap, germicidal &non fragrant)
- Disinfectant (preferably 70% Iso Propyl Alcohol solution, allowed to vaporize completely)
- Dustbin (preferably foot operated, covered & with plastic lining)
- Tap (Preferably foot or elbow operated)
- Suitable temperature controlled water supply (Temperature of water may be as per the industry & operation undertaken. Hands will be cleaned at any temperature of water. Hot water may be used for greasy & oily operations & cold water may be used for other facilities such as handling of raw material etc. Preferred temperature should be around room temperature)

The number of wash hand basins required will depend on a number of factors, including:-

- The nature of the products being produced i.e. high risk, medium or low risk.
- The amount of automation, or is there a lot of hand work.
- The frequency of hand washing needed.
- The number of staff.
- The size and layout of the bakery.

4.4.2 Toilets

It includes –

- Sufficient number and separate hygienically designed toilets with proper flushing facilities shall be provided for male & female. Generally, 1:25 ratio is followed for toilet facility to employee ratio. The toilets shall be connected with an efficient drainage systems
- Hand washing & sanitizing facilities (as mentioned above)
- Adequate natural & mechanical ventilation facilities.

They shall not open directly to the food production area and shall be maintained in clean & hygienic condition.

There must be an intervening space between the toilet and a room where open food is handled. No food or ingredients should be stored in this intervening space. Where there is no demonstrable risk because food is wrapped or packaged eg store room, warehouse, dispatch area, the amount of intervening space necessary will depend upon what is necessary to permit good hygiene practices in the particular circumstances of the case. Where open food is handled, the intervening space should be ventilated by natural or mechanical means.

4.4.3 Rest room & refreshment room

It includes -

- Adequate space to store & consume food& rest during lunch hours or tea break.
- Hand washing & sanitizing facilities (as mentioned above)
- Adequate natural & mechanical ventilation facilities.

They shall not open directly to the food production area and shall be maintained in clean & hygienic condition.

4.4.4 Changing Room –

It includes -

- Locker facility with locks.
- Appropriate PPEs.
- Air curtain at exit doors.
- Clean uniform & shoes.
- receptacle for dirty work wear
- Adequate natural & mechanical ventilation facilities.

Staff must be able to change out of their outdoor clothing away from open food. Depending on the size of the operation and the number of employees, the provision of lockers or cupboards may be adequate. Any additional protective clothing eg freezer coat should be stored away from open food.

A changing room with facilities for storing outdoor clothing and other belongings should be provided with hanging facilities for outdoor clothing to dry. There should be separate changing rooms for male & female. Surfaces should be easy to clean.

4.5 Temperature control

Adequate facilities shall be available for achieving & maintaining temperatures required for heating, cooling, chilling, cooking, refrigerating & freezing food.

There shall be facility for monitoring &controlling temperatures.

4.6 Air Quality & ventilation

Food premises where operation result in release of fumes, smokes or any vapour shall be equipped with an exhaust system or ventilation to

- Minimize airborne contamination of food, for ex aerosols & condensation droplets.
- Control ambient temperatures
- Control odour which might affect the suitability of food
- Control humidity, where necessary, to ensure the safety & suitability of food.

Ventilation system shall be designed & constructed so that air does not flow from contaminated area to clean area. Inlet ducts for the air supply for production areas must be located away from extract vents from areas such as toilets, van sheds, wash up areas, waste storage areas.

Ventilation system should be constructed so as to enable filters and other parts requiring cleaning or replacement to be readily accessible.. This may require the fitting of access panels. Any extract or ventilation system should be cleaned and serviced regularly to ensure it is operating at optimum efficiency.

The FBO should establish requirements for filtration, humidity (RH%) &microbiology of air used as an ingredient or for direct product contact.

Filters should be fitted and should be removable for effective cleaning. Fans should be installed on external walls or roofs where they are accessible for cleaning or removal to allow access to the trunking/ducting. Exterior air intake ports should be examined periodically for physical integrity. The ventilation system should be adequately screened against pests.

4.7 Lighting

Adequate natural or artificial lighting shall be provided to enable the personnel to operate in a hygienic manner. Where necessary, lighting should not be such that the resulting color is misleading. The intensity should be adequate to the nature of the operation.

Lights should be enclosed where possible, particularly if there is a risk of breakage or open food is being handled eg diffusers, plastic sleeves or plastic coated fluorescent tubes.

Lights used in extremes of temperature eg in freezers or ovens, should be capable of withstanding the conditions.

Light fittings should be located so as to minimise the risk of contact and damage. All walk-in chillers and freezers irrespective of size should have lights which operate independent of the door.

Uneven lighting, shadows or glare should be avoided. Recommended lux level for different sections in bakery is mentioned below.

Size of baking area/pastry shop	Minimum recommended requirement of lighting
For existing businesses without spatial separation of the bakery and the pastry/cake shop	200 Lux
If the mixing space, baking room and the workplace for decorating baked goods are separate	Mixing space: at least 300 Lux Baking room: at least 200 Lux Work area for decoration: at least 500 Lux.
If only the bakery and the pastry/cake shop are spatially separated	Bakery: at least 300 Lux Pastry/cake department with decorating Workplaces: at least 500 Lux
If there is no spatial separation of the individual work areas	At least 300 Lux for the whole bakery
Storage of raw material, packing material and finished goods	200 lux
Sieving room (Flour, sugar, chemicals, biscuit dust), biscuit sorting room	300 lux
Pre-mixing, Mixing, Colour and Flavour preparation, Forming, Baking, Packing room	300 lux
Laboratory and test room	400 lux
Dehumidifier room (DH room) and shelf-life room	200 lux
Scrap Room	150 lux
Toilets, change room	150 lux
Loading, unloading and workers entrance	150 lux

4.8 Storage facilities

The food storage facilities shall be designed & constructed to –

- provide protection from dust, condensation, waste, pest access and harbourage and other sources of contamination.
- be dry, well ventilated and enable monitoring and control of temperature and humidity in storage areas where specified.
- be easy to maintain and clean. All materials and products shall be stored off the floor and with sufficient space away from the walls to allow inspection and pest control activities to be carried out.

Adequate facilities for the storage shall be provided. Storage space should be physically separated or segregated for –

- Raw material
- Packaging material
- Returned material
- Recalled material
- Allergens
- Semi processed material
- Final product
- Hazardous chemical (used in engineering)
- Cleaning & disinfection chemical
- Engineering tools
- Waste material (both bio degradable & non-biodegradable)

Storage areas shall be maintained at temperatures, required by the products. It includes –

- Freezer maintained at -18°C
- Refrigerators maintained at 5°C
- Room Temperature at 37°C
- Hot holding unit maintained at or above 60°C

4.9 Compressed air & other gases

Compressed air, carbon dioxide, nitrogen & other gas systems wherever required used in manufacturing &/or packaging shall be constructed & maintained so as to prevent contamination.

Gases intended for direct or incidental product contact (including those used for transporting, blowing or drying materials, products or equipment) shall be from a source approved for food contact use, filtered to remove dust, oil & water.

Where oil is used for compressors and there is potential for the air to come into contact with the product, the oil used shall be food grade. Use of oil free compressors is recommended.

Requirements for filtration, humidity (RH%) and microbiology shall be specified. Filtration of the air should be as close to the point of use as is practicable.

II. CONTROL OF OPERATION

1. Food Receipt

1.1 Procurement of Raw Material

Raw material shall be procured from supplier having FSSAI license. Mandatory document such as Form E shall be procured. As a good practice, Certificate of Analysis (COA) should also be procured from the supplier mentioning its batch number, date of manufacturing, expiry date & testing parameters (physical, chemical &/or biological).

Raw material shall meet the requirements of food product & food additives standards as laid down in regulation. As far as possible, all raw materials shall be procured in packaged form. Sale of loose grounded spices & cooking oil is prohibited. Raw material should be procured according to the storage & consumption capacity.

For imported ingredients &/or products, operators should verify that the suppliers are capable of providing food products that comply with regulations laid down under Food Safety & Standard Act, 2006.

1.2 Vehicle inspection

Vehicle should be clean & free from pest or dirt/dust etc.

Vehicle should be covered with tarpaulin to protect the raw material from external environment.

Raw material should be stacked properly. Jute bags for bulk packaging are not allowed.

1.3 Inspection of raw material

No raw material or ingredient or any other material usedin processing products shall be accepted by a Food Business Operator, if it is known to contain chemical, physical or microbiological contaminants which would not be reduced to an acceptable level by normal sorting &/or processing.

All incoming material should be examined at point of receiving for physical integrity &product information mentioned on the label.

Receiving temperature of potentially hazardous food must be 5°C or below; or 60°C or above. Receiving temperature of frozen food shall be -18°C or below. Records of the receiving temperatures of potentially hazardous & frozen foods must be maintained.

Where necessary, laboratory tests should be made to establish fitness for use. Only sound, suitable raw materials or ingredients should be used. Material should be inspected, tested or covered by COA to verify conformity with specified requirements prior to the acceptance or use. The method of verification should be documented.

Packaged raw material must be checked for expiry date/best before/use by date, packaging integrity & storage conditions before accepting them & stored accordingly.

Records of raw material or ingredient or any other material used in processing as well as their source of procurement shall be maintained for inspection & traceability.

Access points to bulk material receiving lines should be identified, capped & locked. Discharge into such systems should take place only after approval & verification of the material to be received.

Ingredients containing allergens should be clearly identified & stored to prevent cross contamination with ingredients & products not containing allergens & with other material products.

The product specific recommended practices are as follows:

a) Eggs

- Egg shells should not be cracked upon receipt. Discard cracked eggs.
- Storage of eggs in chiller until they are needed. When eggs are required to store at room temperature, current batch of eggs to be used with daily replenishment of stock.
- Washing of hands, utensils and surfaces thoroughly with sanitizing solution and water after handling eggs and before any contact with other food to prevent cross-contamination.

b) Dry ingredients like wheat flour, sugar, milk powders, minor ingredients and cocoa powder

- Sampling and test of incoming raw materials by appropriate test sieves.
- Raw material should be stored in a room that has the required humidity and temperature control.

c) Ready-to-eat products containing lightly-cooked or uncooked eggs (e.g. butter, cream, icing, mayonnaise, mousse, condensed milk)

- Only small batches should be procured of what is required. The demand to be estimated to avoid over- production and prolonged storage.
- Use liquid egg or egg powder instead of shell eggs where possible.
- Cleaning of the drums containing liquid/semi-liquid raw materials for removal of debris and droppings before taking into FBO storage.
- Storage of finished products in covered containers in the chiller at 4°C and below.
- Storage of finished products on separate shelves above raw food (including shell eggs).

d) Wet ingredients like Oils and Fats

- Material carried by tanker with broken seal or without seal is not acceptable. Number on the seal is required to match with seal number mentioned in invoice / CoA. This is primarily to prevent adulteration.
- For preventing physical contamination, 30 BSS sieve and magnet to be put in the hose at the point of unloading.
- Use of proper plunger for homogenising the material in tanker or barrel before sampling.

e) Speciality Ingredients like Nuts and Dry Fruits

- Nuts received are free from fungal or insect infestation
- To ensure that adequate measures have been enforced by nut suppliers to keep equipment and processing area infestation free.
- Prepare a programme for tracking infestation levels supported by action plans for sanitation and fumigation.
- Periodic fumigation of the receiving room to prevent any possibility of cross contamination of incoming materials due to infestation
- Nuts are stored below 4°C to assure dormancy of the insect eggs, if any in the nuts.

1.4 Allergen handling

Major Allergens are –

1. Cereals containing gluten; i.e., wheat, rye, barley, oats, spelt or their hybridized strains and products of these;
2. Crustacean and products of these;
3. Eggs and egg products;
4. Fish and fish products;
5. Soybeans and products of these;
6. Milk and milk products (lactose included);
7. Peanut, tree nuts and nut products; and
8. Sulphite in concentrations of 10 mg/kg or more."

Allergen Control and Management

Display all the allergens at the relevant places in the processing and storage areas for awareness among all the employees. All raw materials that are allergens should be labelled with a tag that states "Allergen."

Maintain all ingredient flow during the manufacturing from non-allergen using areas to allergen using areas. This will help prevent cross-contamination. Preferably products containing non-allergen ingredients should run before the product containing allergic ingredients.

Store all allergic foods or ingredients at a designated area. For partially used allergic packets, the production staff should ensure the partially used packet should be stored separately and completely sealed and identified with label.

Dedicated scoops, utensils shall be used for specific allergens.

Thorough cleaning should be there between allergic containing product manufacture and non-allergic containing product manufacture. When production scheduling and cleaning operations are not performed between allergen containing production runs, allergen testing must be performed. For. E.g. ELIZA test kits are used to verify.

2. Storage (Raw material and final product)

A food business shall store food & packaging material in appropriate areas for effective protection from dust, condensation, drains, waste & other sources of contamination during storage.

Storage areas shall be dry and well ventilated. All material shall be stored as per their temperature & humidity requirements& in particular section.

Material shall be stored off the floor &away from walls. Wooden pallets are not recommended, as they are source of pest harbourage. In case wooden pallets are used, they should be fumigated once in six months. A distance of 0.5 feet off the floor &1.5 feet away from floor is preferred to be maintained. In case large godown are there, distance should be maintained between the pallets also, to avoid pest activity & ease of cleaning.

The storage shall be subjected to First In First Out or First Expiry First Out approach. To meet this, adequate stock rotation systems should be in place.No expired material shall be stored in the storage section and sent to production.

As far as possible, secondary cartons should be removed before sending the raw material/packing material in production/packaging area.

All glass bottles should be stored at the lowermost level, to avoid contamination in case of breakage.

Wrappers & trays should be kept under fumigation &ozonization. All wrappers should be shrink wrap.

All containers used for storing raw material & finished product should be kept covered.

Product that are sensitive to environmental conditions (for ex humidity, light) should be stored in appropriate conditions to prevent deterioration.

During bulk flour handling &storage -

- House couplings, inside & outside plants, should be adequately protected from rodents, clean & in good repair.
- Dust collectors or ventilators bags at the top of the bulk tank should be clean & insect free.
- Inspection parts – cleanable/covered & free from contamination.
- Tailings from sifting operations should be free from contamination.

3. Food processing

Major Critical Points in processing are -

S. No.	Process Step	Critical Points
1.	**Issue of raw material from store to processing**	- Only accepted material to be issued on First-Expiry-First-Out (FEFO) basis for raw materials and First-In-First-Out (FIFO) for packaging materials. - Take out ready-to-eat products containing lightly-cooked or uncooked eggs (e.g. butter, cream, icing, mayonnaise, mousse) what is necessary from the chiller are supplied in small batches. - Wherever thawing before use is a requirement (e.g. for compressed yeast, butter which are stored at lower temperature condition), required quantity of material should be thawed and issued at a time to Production. In case if thawed material cannot be consumed it shall be stored back in Deep Freezer. - Care to be taken to prevent deterioration of the material due to long storage under high temperature in processing area.
2.	**Material Preparation**	- Sieve all incoming ingredients, intermediates and add backs (if any) through appropriate standard mesh. If sieving is not feasible for example, oat flakes, viscous liquids, manual sorting and visual inspection shall be done. - Keep sieved ingredients/ additives in clean and dedicated containers / jars with proper identification, suitably above the floor. The recommended practices while handling eggs are: - Eggs are to be washed or cleaned before use to avoid any food cross contamination. - Pool required number of eggs just before use and break them (also known as 'pooling'). - Raw eggs are to be prepared away from other food, especially cooked/ready-to-eat food to avoid cross-contamination.
3.	**Processing**	- Use equipment namely, storage bins, sifters, dough mixers, rounders, dough dividers, racks, slicers, proofing equipment, oven, rollers, conveyors or utensils like baking pans, pans, bowls, trays, spoons, spatulas, beaters, which are clean, free from contaminants, evidence of insect or rodent infestation and maintained in good repair. - Check the equipment for smooth edge, devoid of spot welding and any paint flaking. - Maintain temperature and humidity in proofing equipment, ovens and cooling area. - Maintain supply of filtered air to the processing area. - Use a fine dust mask for silo cleaning and for other heavily dust-laden activities.

		- Use heat protection gloves while operating ovens. - Inspection cleaning ports on flour conveyor systems shall be accessible, easy to open and clean. - Conveyor systems shall be free from loose threads and pest activity. - Working area as well as the outside premises shall be free from spilled powders, liquids, trash etc. which may attract and harbour pests, rodents and micro-organisms.
4.	**Premixing**	- Sieve flour through minimum BSS 30 mesh supplemented with a magnetic grill. Regularly clean the sieve. - Reject consignment of flour if weevils are observed. - Introduce a periodic cleaning mechanism to prevent cross-contamination and dust generation and to ensure safe collection of unwanted materials like dust, dirt, foreign objects if any. - Use Good Practices such as vacuum cleaning, collection of debris through sodium hypochlorite. - Pass sugar through magnetic grill before use. Ensure periodic cleaning of the magnetic grill. - Use egg trays free from dirt or pests - Collect broken egg shells in plastic bags and dispose off at regular intervals. Do not reuse such bag.
5.	**Mixing**	- Clean and dry mixing room without any spillage. - All mixing utensils are free from grease and old batter. - Washing of mixing bowls, beaters and scrappers with hot water at least once in 24 hours. - Place mixers, bowls and tilts above the floor level for easy access while cleaning which otherwise becomes a neglected area and a breeding place/ infestation by pests. - Use strainer for adding egg whisk while mixing. Clean the strainer with hot water at least once in each shift followed by swabbing with sodium hypochlorite solution. Keep the strainer dipped in 500 ppm sodium hypochlorite solution, when not in use. - Clean the Mixing Room floor with hot water followed by mopping with sodium hypochlorite solution or other disinfectants and floor cleaners.
6.	**Forming**	- Capture wet weight at pre-defined internal frequency to avoid underweight and weight variations. However, it is preferable to check the biscuit/ cookie weight at oven end rather the forming, as this creates empty band patches which lead to edge dark biscuit/ cookies, a reason for consumer non-acceptance. - Ensure thorough cleaning, verification and maintaining record wherever milk spray units or nut or sugar sprinkling units are used in forming section.
7.	**Baking**	- Periodically cleaning the Baking Room, followed by mopping with 500 ppm sodium hypochlorite solution or other appropriate floor odourless cleaners and maintaining it dry. - Maintain Ozonizer discharge in the baking room at 5 g per hour

		level, wherever necessitated. - Mop the cake cooling trolleys daily with 500 ppm sodium hypochlorite solution. - Keep the Reference samples of finished product in daylight colour cabinets with white background, to evaluate the product for its colour.
8.	**Cooling**	- Biscuits and bar cakes are to be transferred immediately after baking to the ambient room. - Maintaining positive pressure in ambient room. - Maintaining Ozonizer discharge in ambient room at 2 g per hour level, wherever required. - Always putting on UV lights during cooling of cakes. - Restricting entry of personnel entry in this room when the UV light is on. - Passing the product through metal detector. - Cleaning the room, mopping of floor with 500 ppm sodium hypochlorite solution or other appropriate sanitizers at least once in each shift and drying. - Checking the cooling canvas on daily basis for its physical conditions (like threads). Stitching torn canvases properly without keeping loose threads behind. - Cleaning of supporting rollers, scrapper knife and catch trays as and when required. - Use of disinfectant solution by workmen for disinfecting their hands before unloading cakes. - Cakes/ Pies can also be cooled under air conditioning provided with HEPA filtered air. Forced cooling at slab cooling room - Cleaning of the room and keeping it dry. - Weekly sanitizing the room with 500 ppm sodium hypochlorite solution. - Always putting on UV lights during cooling of cakes. - Restricting entry of personnel entry in this room when the UV light is on. - Maintaining room temperature at 8-10^{0}C with appropriate recording.
9.	**Sandwiching/ Mallow/ Centre filled application**	- Weigh raw materials for crème preparation in quantities as mentioned in the recipe. - Sieve specific ingredients of crème and/or mallow and pass through magnetic grills. - pass sandwich pass through metal detector to avoid any presence of metal in the product.
10.	**Enrobing**	- Wherever pie enrobing is done, monitoring the enrobed cake weight.

		- Passing the enrobed cake through cooling tunnel at a pre-defined temperature. - To ensure surface sanitation, then passing the enrobed cake through metal detector followed by UV light irradiation.
11.	**Slicing/Packing of Products**	- Cooling baked products in clean cooling chambers and tunnels. - Cooling bread by passing cool humidified air over the product. - Clearing crumbles that are left after slicing the products. - Spraying potassium sorbate uniformly on top surface of naked bar cakes before packing, if needed. - Filtering the air of sorbate spray line through an Ultra Filtration Unit periodically checked and changed. - Using clean food grade packaging to pack the products. Exposing of PVC trays, cakes and wrappers to UV light preferably before packing. - Sterilizing slicer blades and conveyor belts with isopropyl alcohol at least 3 times in each shift or as and when required. - Maintain temperature of cake slabs at the time of packing out from the slab cooling room within the range of 14 – 19^0C. - Keeping control samples in a separate designated place. This is required to retest the samples during any special cases like customer complaints.
12.	**Air Handling Unit (wherever required)**	- Maintaining the Air Handling Unit inside the pre-slab and oven room. Positive pressure is maintained in the order Pre-slab room > oven room. - Air is blown inside the oven and Pre-slab room through sets of micro filters – first through 20 micron, then through 10 micron and finally through 5 micron filter for the oven room. - Additionally the air is passed through HEPA filter for pre-slab room. - Cleaning of 20 and 10 micron filters by water and 5 micron filter by forced air at least once in a fortnight or as required. - HEPA filter is changed when the same is choked or non-functional.

4. Food Packaging

The packaging material shall conform to the standards as laid down under the Food Product Standards (Packaging & Labeling) Regulation, 2011. The packaging material shall provide all the mandatory information as required under the regulation mentioned above.

The food packaging material shall be inspected before use to prevent using damaged, defective or contaminated packaging material, which may lead to contamination of the product.

The packaging material & gases where used, shall be non toxic& shall not pose threat to the safety & suitability of food under the specified conditions of storage & use.

All the packaging surfaces should be kept clean (& sanitized for high risk products) at all times.

Contact parts of packaging machines to be cleaned with 500 ppm hypochlorite solution.PVC trays, cakes & wrappers should be exposed to UV light during packing.

Food handlers should use sterilized gloves for manually handling naked cakes or disinfect their hands with disinfectant solution.

Wrapping and packaging operations shall be carried out in a hygienic manner so as to avoid contamination of the products.First In First Out or First Expiry First Out approach shall be followed. To meet this, adequate stock rotation to be followed.

Packing room should be air conditioned in case of cake or pie (preferably maintained at 22 – 30°C).

Use of staple pins, strings, rubber bands should be avoided. Glue, if used, should not come in contact with the food product, & in case it comes in contact, it shall be food grade.

Reusable packaging, if used, shall be suitably durable, easy to clean & where necessary, disinfect. It shall not have been used for packaging non – food products.

5. Rework & control of non-conforming products

A non-conforming product can be detected through –
- Customer complaints
- Internal defect findings
- Internal audits
- External audits
- Incoming material inspections
- Regular testing & inspection activities.

These products should either be disposed off or reworked. On conforming that product is non conforming, the product shall be clearly identified, kept labelled & segregated to allow traceability. All traceability records of rework shall be maintained such as product name, production date, batch no etc.

Stored material for rework shall be protected from exposure to microbiological, chemical or extraneous matter contamination.

Where rework is incorporated into a product as an “in-process” step, the acceptable quantity, the process step & method of addition, including any necessary pre-processing stages, shall be defined.

Where rework activities involve removing a product from filled or wrapped packages, control shall be put in place to ensure the removal & segregation of packaging materials & to avoid contamination of the product with extraneous matter.

Handling of Allergen rework/ add back to be done in such a way, that the rework containing allergen shall not cross contaminate non allergen containing food material during processing, handling & storage.

Non-conforming material to be disposed off shall be disposed as per the requirements of Environment Protection Act, 1986.

6. Food Transportation

Conveyances &/or containers used for transporting food stuffs shall be designed and constructed to permit adequate cleaning &/or disinfection. They shall be kept clean & maintained in good repair condition to protect food stuff from contamination. Identification of an appropriate supply chain shall be done having the provision of minimizing food spoilage during transportation.

Use non toxic materials of construction for conveyances meant for transporting food stuff Where direct contact with food may occur, materials used in carrier construction should be suitable for food contact.

Inspection of vehicle prior to loading with foods for any visual evidence of contamination and/or pest infestation, dirt or other obnoxious matter and maintaining records thereof. Applying FEFO for dispatch of all products.

Loading of goods should be done in designated area with sufficient ventilation, preferably in separate rooms. If possible practice controls like conveyorization, usage of loading stands to avoid product breakage/ integrity while loading.

Ideally vehicles should not be used for transporting food stuff other than food stuffs where this may result in contamination of foodstuff. However, where conveyances are used for transportation anything other than food stuffs or for transporting different foods, there shall be effective cleaning between loads to avoid risk of contamination.

Wherever necessary, conveyances and/or containers are used for transporting anything in addition to foodstuffs or for transporting different foods at the same time, there shall be, where necessary, effective separation of products to prevent cross contamination.

Wherever necessary, conveyances used for transporting food stuff shall be capable of maintaining food stuffs at appropriate temperatures & allow those temperatures to be monitored and maintaining records thereof.

7. Food traceability & recall

Effective recall procedure where applicable, including a description of the responsibilities & actions to be taken, shall be in place to deal with any food safety hazard & to enable the complete, rapid recall of any implicated lot/batch of the finished food from the market.

For recall to be performed, Food Safety & Standard (Food Recall Procedure) Regulation, 2011 shall be followed.

The recall program should be tested at least once a year through appropriate means such as mock recall. It should be tested to verify its ability to rapidly identify, control & recall all the

potentially affected products. The operator should identify & correct any deficiencies in the recall procedure.

Recalled products shall be held under supervision until they are destroyed, used for purposes other than human consumption, determined to be safe for human consumption, or reprocessed in a manner to ensure food safety.

Records of recalled products shall be maintained. Records should demonstrate effective identification, traceability /product tracing, recall, subsequent handling & disposal of recalled food.

8. Quality Control

The food business operator shall have a quality control programme in place to include inspection and testing of incoming, in process and finished products.

Calibration of laboratory equipment's shall be done periodically.

Adequate infrastructure including the laboratory facility and trained and competent testing personnel should be available for carrying out testing. In case of inadequate in house test facilities, a system shall be in place for testing these materials in an accredited external laboratory/ laboratory notified by FSSAI.

In case of complaints, the food business operator shall carry out testing either through their in-house/external NABL accredited laboratories notified by FSSAI.

Finished food product shall be tested as per FSS standards and regulations 2011 atleast once in six months from an FSSAI notified laboratory. It is recommended to retain the control samples, till the end of the shelf life. Testing records shall be maintained.

III. ESTABLISHMENT – MAINTENANCE & SANITATION

1. Cleaning & sanitation

Food premises & equipment should be of hygienic design and shall be maintained in an appropriate state of repair (such as no flaking paint or plaster, no broken tiles) & cleanliness.

Ensure all equipment, utensils and food contact surfaces should be cleaned and sanitized thoroughly before start of operation. For eg. Proper sanitation of fermentation chamber or premise will help to eliminate microbes in the product.

Cleaning and sanitizing equipment should be designed for its intended use and should be properly maintained.

Cleaning program shall remove food residues and dirt which are source of contamination. Cleaning can be carried out by the separate or the combined use of physical methods, such as heat, scrubbing, turbulent flow, vacuum cleaning or other methods that avoid the use of water, and chemical methods using detergents, alkalis or acids. Cleaning and sanitizing procedures should be written for both cleaned-out-of-place (C.O.P.) equipment and cleaned-in-place (C.I.P.) equipment. CIP systems shall be separated from active product lines. Parameters for CIP systems shall be defined and monitored (including type, concentration, contact time and temperature of any chemicals used).

A cleaning and disinfection program shall be drawn up, observed and records of the same shall be maintained. The programme should ensure that all parts of the establishment are appropriately clean, and should include the cleaning of cleaning equipment. The operator shall implement a written cleaning program which specifies:

- areas, items of equipment and utensil to be cleaned;
- the person or people responsible for particular tasks;
- the frequency of cleaning;
- the procedures for cleaning and sanitizing, including disassembly and assembly instructions; and
- monitoring arrangements for checking effectiveness of cleaning (eg. Through audits or microbiological sampling and testing of the environment and food contact surfaces)

Cleaning procedures should involve, where appropriate:

- removing gross debris from surfaces;
- applying a detergent solution to loosen soil and bacterial film and hold them in solution or suspension;
- rinsing with water which complies with section 4, to remove loosened soil and residues of detergent;
- dry cleaning or other appropriate methods for removing and collecting residues and debris. For Eg. Dusters/cleaning clothes should not have loose threads & preferably be double

stitched from all sides. Also, to remove crumbs and burnt product blow drying is a suitable process;
- where necessary, disinfection with subsequent rinsing unless the manufacturers' instructions indicate on scientific basis that rinsing is not required.

Cleaning chemicals shall be food grade, handled and used carefully, in accordance with manufacturer's instructions. It should be ensured that cleaning & sanitizing chemicals do not contaminate food or packaging material during or after cleaning and sanitizing. Ensure clear identification of containers containing cleaning chemicals.

Special sanitation and housekeeping procedures required during manufacturing, storage, distribution and handling should be specified within the document (for example, removal of product residues during breaks, glass breakage procedures).

2. Maintenance

Preventive maintenance of equipment & machinery shall be carried out regularly as per the instructions of the manufacturers.

Preventive maintenance (including calibration) programme must include all devices used to monitor &/or control food safety hazards & cover the maintenance procedure, frequency &identification of the person (&/or external agency) responsible activity.

Corrective maintenance shall be carried out in such a way that production on adjoining lines or equipment is not a risk of contamination.

Temporary fixes when used shall not put product safety at risk & should be removed/permanently fixed in a timely manner.

Lubricants, heat transfer fluids or any other similar material used shall be of food grade where there is risk of direct or indirect contact with the product.

Conduct regular inspections and maintenance of equipment's. Promptly repair or replace damaged equipment to prevent contamination, such as sieves for sieve integrity.

3.Pest Control Systems

A pest is any living organism that causes damage/discomfort to material & humans or transits/produces diseases.

The Food Business Operator shall implement an effective pest control program for the premises & equipment. This program shall prevent the entry of pest; detect and eliminate any pests which may gain entry. It shall include the placing of detectors and/or traps in key locations to identify pest activity. A map of detectors and/or traps shall be maintained. Detectors and/or traps shall be designed and located so as to prevent potential contamination of materials, products or facilities.

The program should consist of:

- the person who is assigned responsibility for pest control;
- the name of the pest control company or the name of the person contracted for the pest control program, where applicable;
- the list of chemicals used, their concentration (in accordance with label instructions), and the location, method and frequency of application;
- a map of the location of pest control devices that are monitored; and
- the type and frequency of inspection to verify the effectiveness of the program.

Pesticides used shall be registered under the Environment Protection Act, 1986. Chemical treatment of equipment, premises or ingredients to control pests should be as per label instructions. They should also be applied so that the maximum residue limit specified in the Food and Drugs Act and Regulations is not exceeded. Records of pesticides / insecticides used along with dates and frequency shall be maintained. Poisonous rodenticides shall not be used within the premises.

Pest control is done through **4D's approach** –

1D – Deny Entry- Preventing Entry	**2D – Deny Shelter – Elimination of Harborage of Pests**	**3D – Deny Food- Eliminate food sources to pests**	**4D – Eradication of Pests**
• Seal all holes, crevices at ceilings, walls and floors • Threshold clearances of doors < 6mm, fix metal kicking plates • Double door / air curtains / strip curtains / mesh screens, self-closing doors at appropriate locations Missing / damaged gratings of drains installed / replaced	• Avoid False sealing in processing and storage area • Repair defects on walls, floors, ceilings, woodwork & other structures • Remove disused / obsolete articles from food premises	• Store all foods and condiments in sealed / covered containers • Floor free from food remnants • Prohibit preparing food and utensils cleaning at other places • Store refuse in dedicated closed container and discard periodically to prevent accumulation. • Surface channels and gratings clean and clear of food remnants	• Clean & disinfect pest infested places, clothing and equipment • Use Insectocuter – Place 4.5 to 6 m away from food handling area • Use low wall mounted insectocutors • Clean insectocutor every week • Cover all foods during Pest control treatment • Use glue pads inside and rodent boxes outside the processing areas • Pest or chemical contaminated food be discarded.

4. Waste disposal management

Food waste, non-edible by product & other refuse shall not be allowed to accumulate in food handling or storage areas. It shall be removed periodically with a minimum daily removal so as to avoid accumulation & overflow in food handling, food storage, other working areas & adjoining environment.

Labelled materials, products or printed packaging designated as waste shall be disfigured or destroyed to ensure that trademarks cannot be reused.

Removal and destruction should be carried out by approved disposal contractors. The organization should retain records of destruction.

Disposal of sewage & effluents (solid, liquid & gas) shall be done in conformity with specified requirements of factory act/ state pollution control board.

Waste stores and dust bins must be kept appropriately clean, free of pests and in closed conditions and shall be disposed as per local rules and regulations including those for plastic and other non- environment friendly materials.

IV. ESTABLISHMENT – PERSONAL HYGIENE

1. Health Status

Food handlers shall undergo a medical examination by a registered medical practitioner annually to ensure that they are free from any infectious & other communicable diseases. A record of these examinations shall be maintained.

Food handlers shall be inoculated against the enteric group of diseases as per the recommended schedule of the vaccine & records shall be maintained.

Medical examination to be concluded includes –

- Physical examination
- Eye test
- Skin examination
- *Compliance with Schedule of vaccine to be inoculated against enteric group of disease.
- Any test required to confirm any communicable or infectious disease which the person suspected to be suffering from, on clinical examination.

**Vaccine to be inoculated against enteric group of disease, shall be decided by the medical practitioner according to the list as declared by the municipal corporation of that area.*

Record of medical examination shall be maintained in the performa as prescribed under Food Safety & Standards Act, 2006.

2. Illness & injury

Food handlers suffering from of a disease shall not be allowed to handle food or material which comes in contact with food.

Employees shall report the following conditions to the supervisor for possible exclusion from food handling areas - Jaundice, diarrhoea, vomiting, fever, sore throat with fever, visibly infected lesions, boils, cuts or sores & discharge from ears, eyes or nose.

Medical examination of a food handler shall be carried out apart from the periodic medical examination, if clinically or epidemiologically indicated.

Personnel with open cuts, wounds or burns shall be required to cover them with suitably water proof dressings before starting operation. Any lost dressing must be reported to supervisor immediately.

The dressing should preferably be of bright color & metal detectable.

3. Personal cleanliness

Food handlers shall maintain high degree of personal hygiene.

They shall wear work clothing, head covering & footwear that is fit for the purpose, clean & in good condition (free from tears, rips or fraying material).

Workwear shall provide adequate coverage to ensure that hair, beard, perspiration etc. cannot contaminate the product. Workwear should be free from buttons, with outside pockets above waist level. Zips or press stud fastenings are acceptable. They should be laundered to standards and at intervals suitable for the intended use of the garments.. Head cover should be worn first & footwear at the last, followed by sanitization.

Protective clothing mandated for the food production areas shall not be used for any other purpose. Protective clothing includes – hair net, moustache net, glasses, ear plugs, gloves, aprons, foot wear. The aprons & dresses of food handlers kept in an ozonized cabinet or UV induced cabinets when handling sensitive products like pies, cakes.

Where gloves are used for product contact, they shall be clean & in good condition. Working without gloves can be done provided there are necessary controls on periodic usage of disinfectants at work section & nature of the product being handled.

Hair shall be kept neatly tied & finger nails shall be kept trimmed. The food handlers shall prohibit the use of nail polish, false nails and false eyelashes; carrying of writing implements behind the ears. No strong perfume/lotion should be applied.

Shoes worn outside food handling area shall not be allowed to enter food handling area. Shoes for use in processing areas shall be fully enclosed and made from non-absorbent materials. Street shoes either shall be changed or covered using footcover.

All people entering the food handling area shall wash their hands. Hand-washing notices should be posted in appropriate areas. Hands shall also be washed after -

- handling non - food chemicals.
- handling incompatible food products (such as raw versus cooked food) or contaminated material.
- breaks
- coughing or sneezing or blowing their nose.
- using toilet facilities.
- using cellphones
- smoking

As a good practice, cell phones should be used as minimum as possible (especially in high risk areas) as they are also a source of contamination. Food handler should not handle soiled currency notes/cards to avoid contamination.

Food handlers shall pass through air curtain to remove any lint or hair while leaving the changing room.

4. Personal Behaviour

All food handlers shall follow a good personal behaviour. Any behaviour or unhygienic practice which could result in contamination of food shall be prohibited in food handling areas. It includes –

- Smoking
- Chewing
- Eating
- Unprotected sneezing or coughing
- Spitting

Food handlers shall avoid certain hand habits such as scratching nose, running fingers through hair, rubbing eyes, ears & mouth, scratching beard or part of bodies. When unavoidable, hands shall be effectively washed before resuming work after such actions. Personal effect such as jewellery, watch, pins or other items should not be worn or brought into food handling areas if they pose threat to the safety and suitability of food.

Food contact tool & equipment shall not be kept in personal lockers. Processing equipment (for example, refrigerators and freezers) should not be used for personal storage (such as storing lunches).

5. Visitors

Visitors shall wear protective clothing, footwear and adhere to all the personal hygiene requirements as mentioned above while entering food handling areas.

V. PRODUCT INFORMATION AND CONSUMER AWARENESS

1. Product information &Labeling

All packaged food products shall carry a label and requisite information as per provisions of Food Safety and Standards Act, 2006 and regulations made there under so as to ensure that adequate and accessible information is available to each person in the food chain to enable them to handle, store, process, prepare and display the food products safely and correctly and that the lot or batch can be easily traced and recalled if necessary.

This should also include information that identifies food allergens in the product as ingredients or where cross contamination cannot be excluded as per Food Safety Standards (Packaging & Labelling) Regulations, 2011.

Lot identification is essential in product recall and also helps effective stock rotation. Each container of food should be permanently marked to identify the producer and the lot.

2. Consumer awareness and Complaint handling

Information shall be presented to consumers in such a way as to enable them to understand its importance and make informed choices. Information may be provided by labelling or other means, such as company websites and advertisements, and may include storage, preparation and serving instructions applicable to the product.

Product complaints are an important indicator of possible deficiencies of the preventive food safety control systems and/or pre-requisite programs. The operator should develop and implement written procedures to handle product complaints. These should identify the person or people responsible for receiving, evaluating, categorizing, investigating and addressing complaints.

Consumer awareness program should include general food hygiene. Such program should enable consumers to understand the importance of any product information & to follow any instructions accompanying product & make informed choices. In particular consumers should be informed of relationship between time/ temperature control & food borne illness.

The information received from the complainant should be documented and should include:

- the date;
- the name of complainant, and their address and phone numbers;
- the nature and details of the complaint (for example, illness, allergic reaction, quality issue, labelling issue);
- the product affected (including name, description, size, date of manufacture, code, lot number or UPC); and
- where the product was obtained.

Complaints should be accurately categorized according to safety concerns and other regulatory concerns, such as labelling. Complaints related to food safety shall be investigated by appropriately-trained technical personnel.

The step – wise preferable practices on complaint handling are:

- Policy and complaints handling procedure
- Examining the complaint to identify the food safety risk
- Investigation and root cause analysis (RCA)
- Corrective action
- Resolving the complaint with complainant
- Complaint trending and analysis
- Preventive action

VI. ESTABLISHMENT-TRAINING & MANAGEMENT

1. Training

All personnel should be aware of their role & responsibility in protecting food from contamination or deterioration. Training need identification to be done for all food handlers and accordingly training to be organized.

Training should be given to personnel responsible for monitoring and measurements and corrective actions in the food safety management system, supervisors whose activities have an impact on food safety and internal auditors. Periodic assessments of the effectiveness of training should be done.

Annual training calendar should be prepared covering all relevant topics pertaining to the food business (both behavioural and functional) with an objective to cover all food handlers in phased manner.

All food handlers shall be instructed &trained in food hygiene & food safety aspects along with personal hygiene requirements commensurate with their work activities, the nature of food, its handling, processing, packaging, storage, service & distribution. Induction trainings (for new employees) and refresher trainings (for existing employees) should be conducted.

Training programs shall be routinely reviewed & updated wherever necessary. Systems shall be in place to ensure that food handlers remain aware of all procedures necessary to maintain the safety & suitability of food. Records of training shall be maintained.

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2. Management & supervision

The Food Business shall ensure that technical managers and supervisors have appropriate qualifications, knowledge and skills on food hygiene principles and practices to be able to ensure food safety and quality of its products, judge food hazards, take appropriate preventive and corrective action, and to ensure effective monitoring and supervision.

The FBO management shall provide and maintain documented standard operating procedure for FSMS systems compliance and its supervision at site through records/ checklists on routine basis to control any possible hazards throughout supply chain.

Commitment from management is essential to communicate the importance of producing safe food, both for the consumer and the business. Managers should continually improve the effectiveness of the food hygiene systems in place by:

- ensuring that roles and responsibilities are clearly communicated in the food business;
- ensuring the availability of resources;
- maintaining the integrity of the food hygiene system when changes are planned and implemented;
- verifying that controls are working and documentation is up to date;

- ensuring the appropriate training and supervision is in place for personnel;
- ensuring compliance with relevant statutory and regulatory requirements; and
- enable a strong food safety culture by demonstrating commitment to providing safe and suitable food and encouraging appropriate food safety behaviours.

VII. ESTABLISHMENT - AUDIT, DOCUMENTATION AND RECORD KEEPING

1. Self-Evaluation and Review

FBO shall conduct a self evaluation through internal and external audits or other mechanisms at periodic intervals, but atleast once in a year to verify the effectiveness of the implemented food safety systems. For continual improvement, FBO should undertake a complete review of the systems including self evaluation results, customer feedback, complaints, new technologies and regulatory updates at periodic intervals, but atleast once in a year.

Necessary corrective actions based on self evaluation results shall be taken.

2. Documentation & Records

Appropriate documentation & records including incoming material checks, inspection and testing, calibration of food safety equipments, water testing, operational controls (such as temperature, pressure, time etc.), product recall and traceability, storage, cleaning and sanitation, pest control, medical examination and health status of food handlers, training etc. shall be maintained in a legible manner, retained in good condition for a period of one year or the shelf life of the product whichever is more.

Any changes to records should be traceable (for example, errors are identified by a strike out and followed by initials). Each entry on a record should be signed and dated by the responsible person at the time the specific event occurred.

Record-keeping requirements and responsibilities should be communicated to staff.

Records should be kept in a secure location, maintained and readily available for a period of one year or shelf life, whichever is more.

C. HACCP IMPLEMENTATION

I. INTRODUCTION TO HACCP

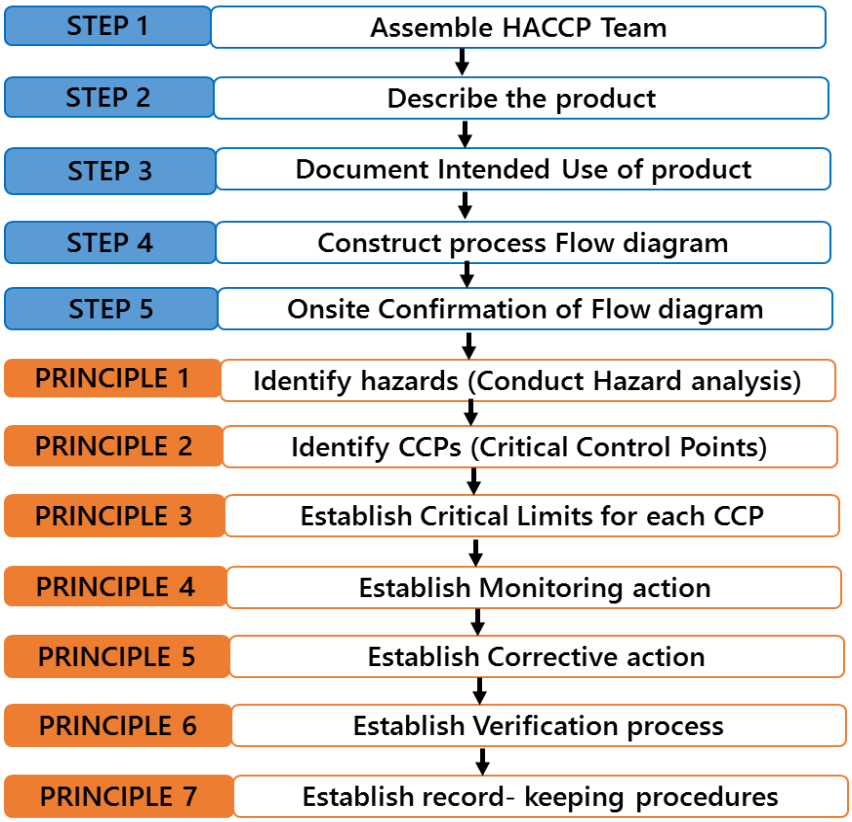
Implementing Hazard Analysis and Critical Control Point (HACCP) is crucial for any food manufacturing process. A HACCP plan covers the total supply chain, from inbound logistics, through storage, processing, sanitation and maintenance to the final use by the consumer. Across the operations, it must be ensured that procedures are available for internal logistics, processing specifications, working instructions, hygiene procedures and preventive maintenance plans. These procedures must cover start-ups, shutdown and unexpected stoppages during processing.

Hazard Analysis Critical Control Point (HACCP) is essential to carry out to identify the weakness of the production line and to suggest critical limits in compliance with legislation and therefore the preventive and corrective measures.

Though HACCP system was designed to aim zero defect products, yet it is not feasible to achieve 100% defect free products. However, it sets a goal to minimize the associated risks during production and subsequently reduce unacceptable unsafe products.

During implementation of HACCP, it is imperative to set controls at each point of the production line at which safety problems (physical, chemical and microbiological) are likely to occur.

A HACCP plan is required to be in place before initiating the HACCP system. A HACCP plan consists of 5 initial steps and 7 major HACCP principles.



The requirements for Sanitation Standard Operating Procedures (SSOPs) along with Good Manufacturing Practices (GMPs) & Good Hygiene Practices should be considered as Pre-Requisite for HACCP.

Risk assessment is a critical step in a HACCP plan. Below is a template to determine what severity and probability a processing step is involved with and therefore what level of criticality is holds in the processing line.

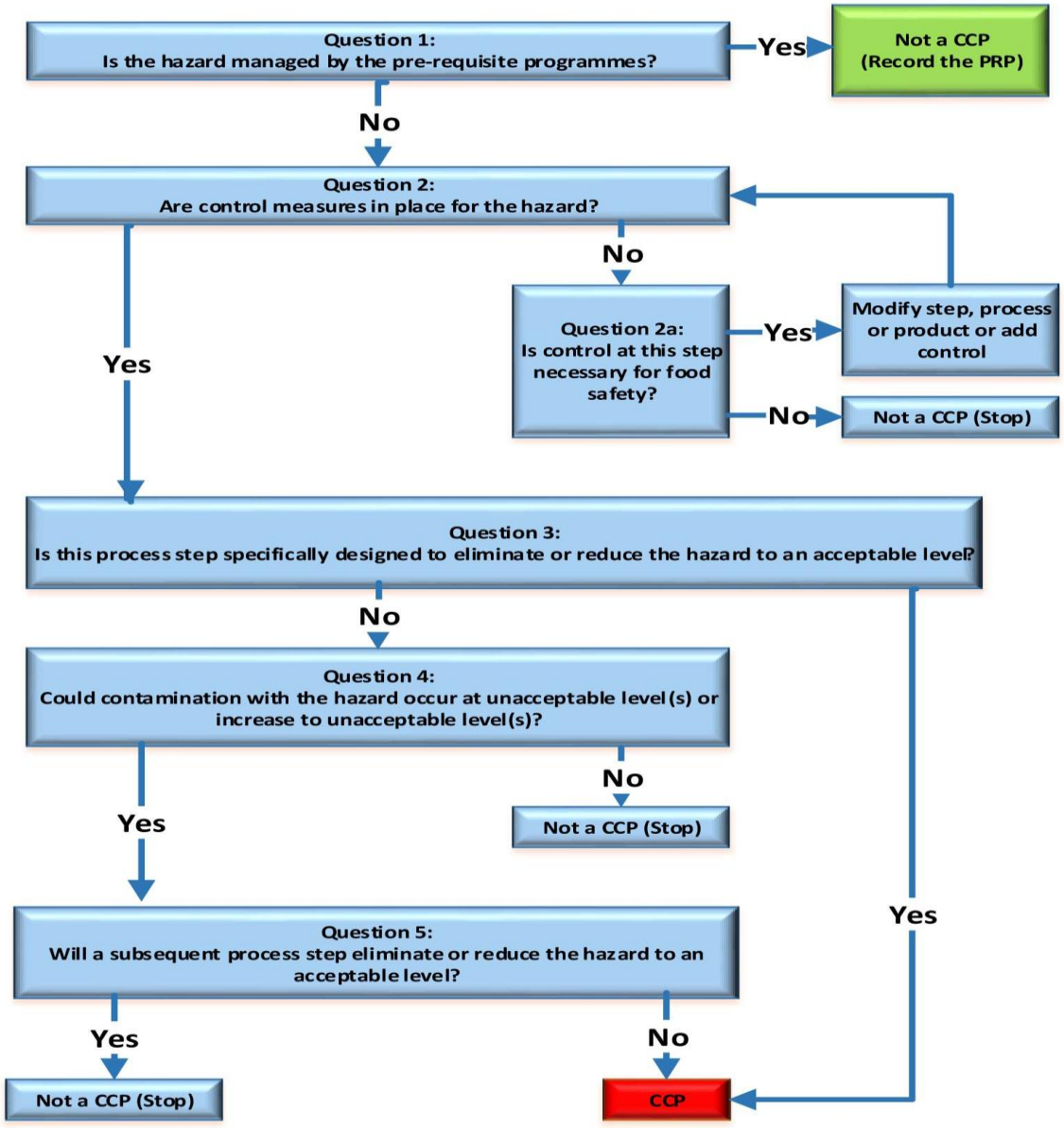
			Consequence/ Severity				
			How severe could the outcome be if the risk event occurs?				
			Severe	**Major**	**Significant**	**Minor**	**Insignificant**
Probability/ Likelihood	What's the chance of the risk occuring?	**Frequent**	Extreme	Extreme	Very High	High	Medium
		Likely	Extreme	Very High	High	Medium	Medium
		Occasional	Very High	High	Medium	Medium	Low
		Seldom	High	Medium	Medium	Low	Very Low
		Unlikely	Medium	Medium	Low	Very Low	Very Low

Introduction to Decision Tree

Hazard Analysis and Critical Control Point (HACCP) decision trees are tools that can be used to help you decide whether a hazard control point is a critical control point (CCP) or not. A CCP is a step at which control can be applied. However, it is not always possible to eliminate or prevent a food safety hazard, so this allows you to reduce it to an acceptable level.

The purpose of a decision tree is to support the judgement of the team and help you to confirm whether the hazard needs more food safety controls. Decision trees are not mandatory elements of HACCP but they can be useful in helping you determine whether a particular step is a CCP.

It is vital that you determine the correct CCPs to ensure that food is managed effectively and safely. The number of CCPs in a process will depend on how complex the process is and how many hazards are present.



II. APPLICATION OF HACCP SYSTEM

1. HACCP Implementation steps

1.1 Assemble HACCP team

The food operation shall ensure that the appropriate product specific knowledge and expertise is available for the development and implementation of an effective HACCP plan. A multidisciplinary team shall be assembled either in-house or if such expertise is not available on-site , expert advice shall be obtained from other sources, such as trade and industry associations, independent experts, regulatory authorities, HACCP plan shall be identified and shall describe which segment of the food chain is involved and the general classes of hazards to be addressed (all or selected classes).

1.2 Describe product

A full description of the product shall be drawn up, including relevant safety information such as composition (including raw materials ingredients, allergens), origin,physical/chemical properties that impact food safety (including Aw, pH, etc.),microbial/static treatments (heat treatment, freezing, brining, smoking etc.), packing, labelling, durability and storage conditions and method of distribution. Within businesses with multiple product for example, catering operations with similar characteristics or processing steps may be grouped for the purpose of development of the HACCP plan.

1.3 Identify intended use

The intended use of the product shall be defined based on the expected uses of the product by the end user or customer. The suitability of the product for vulnerable groups of the population such as pregnant women, infants, elderly should be considered, as necessary.

1.4 Construct flow diagram

The flow diagram shall be prepared to cover all steps in the operation for each specific product or product category. When applying HACCP to a given operation, consideration shall be given to steps preceding and following the specified operation.

1.5 On-site confirmation of flow diagram

Steps shall be taken to confirm the proceeding operation against the flow diagram during all stages and hours of operation and amend the flow diagram where appropriate. The confirmation of the flow diagram should be performed by a competent person or persons. On-site verification activities shall be carried out whenever there are any changes in the process.

1.6 List of all potential hazards associated with each step, conduct a hazard analysis, and consider any measures to control identified hazards (SEE PRNCILPLE 1)

The HACCP team should list all potential hazards (physical, chemical, biological) that may be reasonably expected to occur at each step according to the scope. It should then conduct a hazard

analysis to identify for the HACCP plan which hazards are of such a nature that their elimination or reduction to acceptable levels is essential to the production of safe food.

In conducting the hazard analysis, the following should be included as appropriate:

- The likely occurrence of hazard and severity of their adverse health effects;
- The qualitative and/ or quantitative evaluation of the presence of hazards;
- Survival or multiplication of micro-organisms of concern;
- Production of persistence of foods of toxins, chemicals or physical agents; and
- Conditions leading to the above.

For selection of control measures, consideration shall be given to what control measures, if any, can be applied to each hazard.

More than one control measure may be required to control a specific hazard and more than one hazard may be controlled by a specified control, measure. Where elimination of hazard is not practical, justification for acceptable levels of the hazard in the finished product shall be determined and documented.

1.7 Determine Critical Control Points (SEE PRINCIPLE 2)

For each hazard that requires control, control measures shall be identified. The control measures shall be reviewed to identify those that need to be addressed through the HACCP plan and for which CCPs shall be identified. There may be more than one CCP at which control is applied to address the same hazard or there may be cases where there is no CCP identified. The CCP in the HACCP system shall be determined and this may be facilitated by a logic reasoning approach such as the application of a decision tree (see dia 2). The application of a decision tree should be flexible. This example of a decision tree may not be applicable to all situations and alternative approaches may be used.

If a hazard has been identified at a step where control is necessary for safety, and no control measure exists at that step, or any other, then the product or process should be modified at that step, or at any earlier or later stage, to include a control measure.

1.8 Establish Critical Limits for each CCP (SEEPRINCIPLE 3)

Critical Limits shall be specified and validated for each CCP. In some cases more than one critical limit may be elaborated at a particular step.

These critical limits shall be measurable, Critical Limits based on subjective data (such as visual inspection of product, process, handling) shall be supported by instructions or specifications and / or education and training.

1.9 Establish a monitoring system for each CCP (SEE PRINCIPLE 4)

A monitoring system shall be established for each CCP to demonstrate that the CCP is under control. The monitoring shall be able to detect loss of control at the CCP and in time to make adjustments to regain control of the process and prevent violation of the critical limits. Where possible, process adjustments should be made when the results of monitoring indicate a trend towards loss of control at a CCP. The adjustment should be taken before a deviation occurs.

Data derived from monitoring shall be evaluated by a designated person with knowledge and authority to carry out corrective actions when indicated. If monitoring is not continuous, then the amount or frequency of monitoring shall be sufficient to ensure that the CCP is under control. The monitoring system shall cover the following:

a) Measurements or observations that provide results within an adequate time frame;
b) Monitoring device used;
c) Applicable calibration method;
d) Monitoring frequency;
e) Responsibility and authority related to monitoring and evaluation of monitoring results; and
f) Records.

All records and documents associated with monitoring CCPs shall be signed by the person(s) doing the monitoring and by the responsible reviewing official(s) of the company.

The monitoring methods and frequency shall be capable of determining when the critical limits have been exceeded in time for the product to be isolated before it is used or consumed.

1.10 Establish corrective actions (SEE PRINCIPLE 5)

Specific planned corrective actions shall be developed for each CCP in the HACCP system in order to deal with deviations when they occur and to prevent their recurrence. This may require identification of the causes of deviation.

The action shall ensure that the CCP has been brought under control. Actions taken shall also include proper disposition of the affected product. Deviation and product disposition procedures shall be documented. Records of deviations and disposition shall be maintained.

1.11 Establish Verification Procedures (SEE PRINCIPLE 6)

The verification procedures consist of two activities, verification activities and validation activities.

The food business operator shall have in place a system to verify the HACCP plan at a set frequency. Procedures for verification shall be established. The frequency of verification should be sufficient to confirm that the HACCP system is working effectively.

Verification should be carried out by someone other than the person who is responsible for performing the monitoring and corrective actions. Where certain verification activities cannot be performed in-house, verification should be performed on behalf of the business by external experts or qualified third parties.

The HACCP system, including the HACCP plan, shall be reviewed (atleast once in a year) and necessary changes made when any modification is made in the product, process, or any step.

Verification activities shall include:

- Self-evaluation;
- Review of the HACCP system and plan and its records;
- Review of deviation and product dispositions; and
- Confirmation that CCPs are kept under control.

The results of verification shall be maintained and communicated to the HACCP team/ relevant staff.

The food business operator shall periodically validate the HACCP plan and necessarily before its implementation and after any changes are made. The objective of the validation process is to ensure that identified hazards are complete, correct and effectively controlled under the HACCP plan. Validation activities should include actions to confirm the efficacy of the HACCP system. Records of validation shall be maintained. An annual review of the complete HACCP system shall be carried out.

Verification and validation activities are also important for maintenance of the system as well as continual improvements.

1.12 Establish Documentation and Record Keeping (SEE PRINCIPLE 7)

HACCP procedures shall be documented. Documentation and record keeping shall be appropriate to the nature and size of the operation and sufficient to assist the business to verify that the HACCP controls are in place and being maintained.

Documentation shall include (as a minimum) the following:

- HACCP team composition;
- Product description;
- Intended use;
- Flow chart;
- Hazard analysis;
- CCP determination;
- Critical limit determination;
- Validation process; and
- HACCP plan

The HACCP plan shall include the following information for each identified CCP:

- Food safety hazard(s) to be controlled at the CCP;
- Control measure(s);
- Critical limit(s);
- Monitoring procedure(s);
- Corrections and corrective action(s) to be taken if critical limits are exceeded;
- Responsibilities and authorities for monitoring, corrective action and verification;
- Record(s) of monitoring.

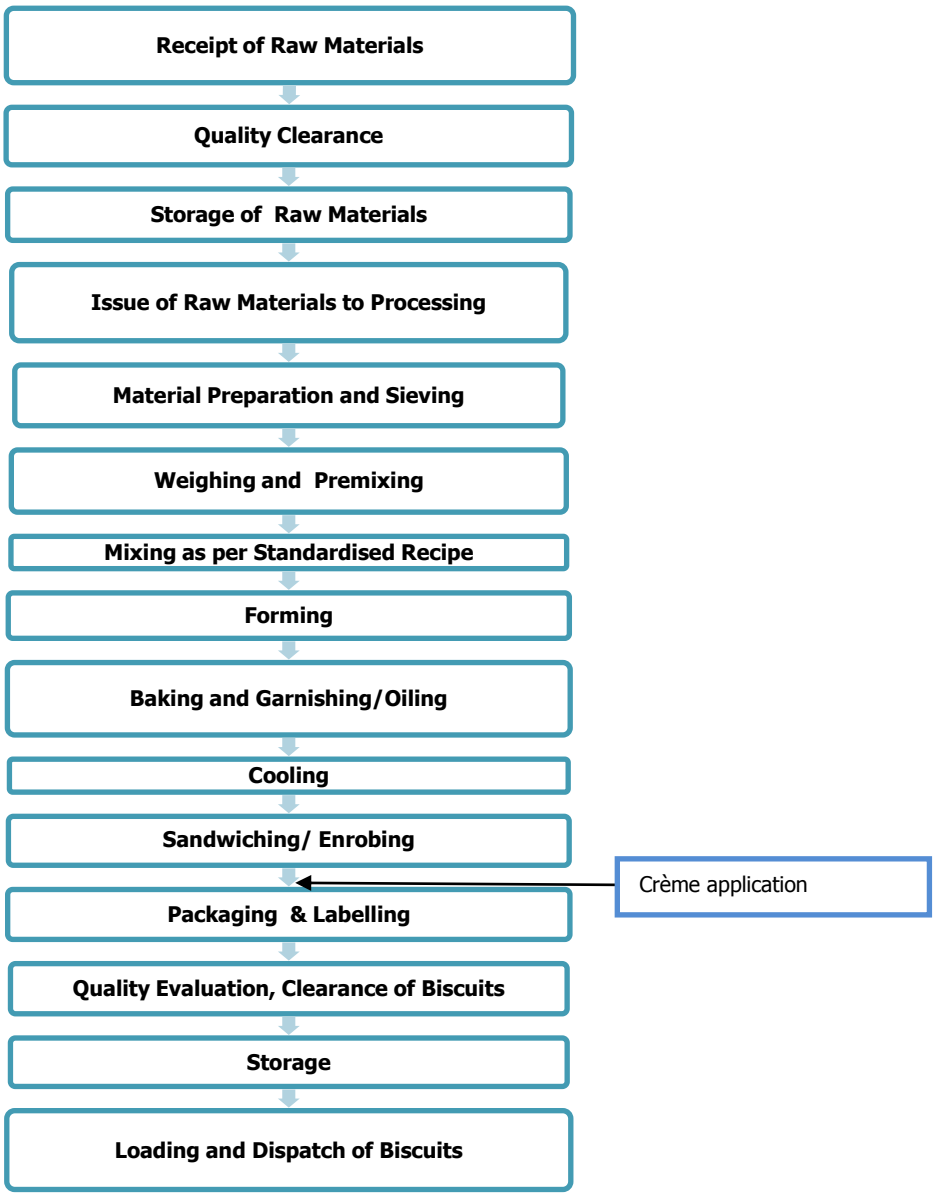
Records to include

- CCP monitoring activities;
- Deviations and associated corrective actions;
- Disposition of non-conforming products;
- Verification procedures performed;
- Modifications to the HACCP plan;
- Validation record;
- Product release records; and
- Testing records.

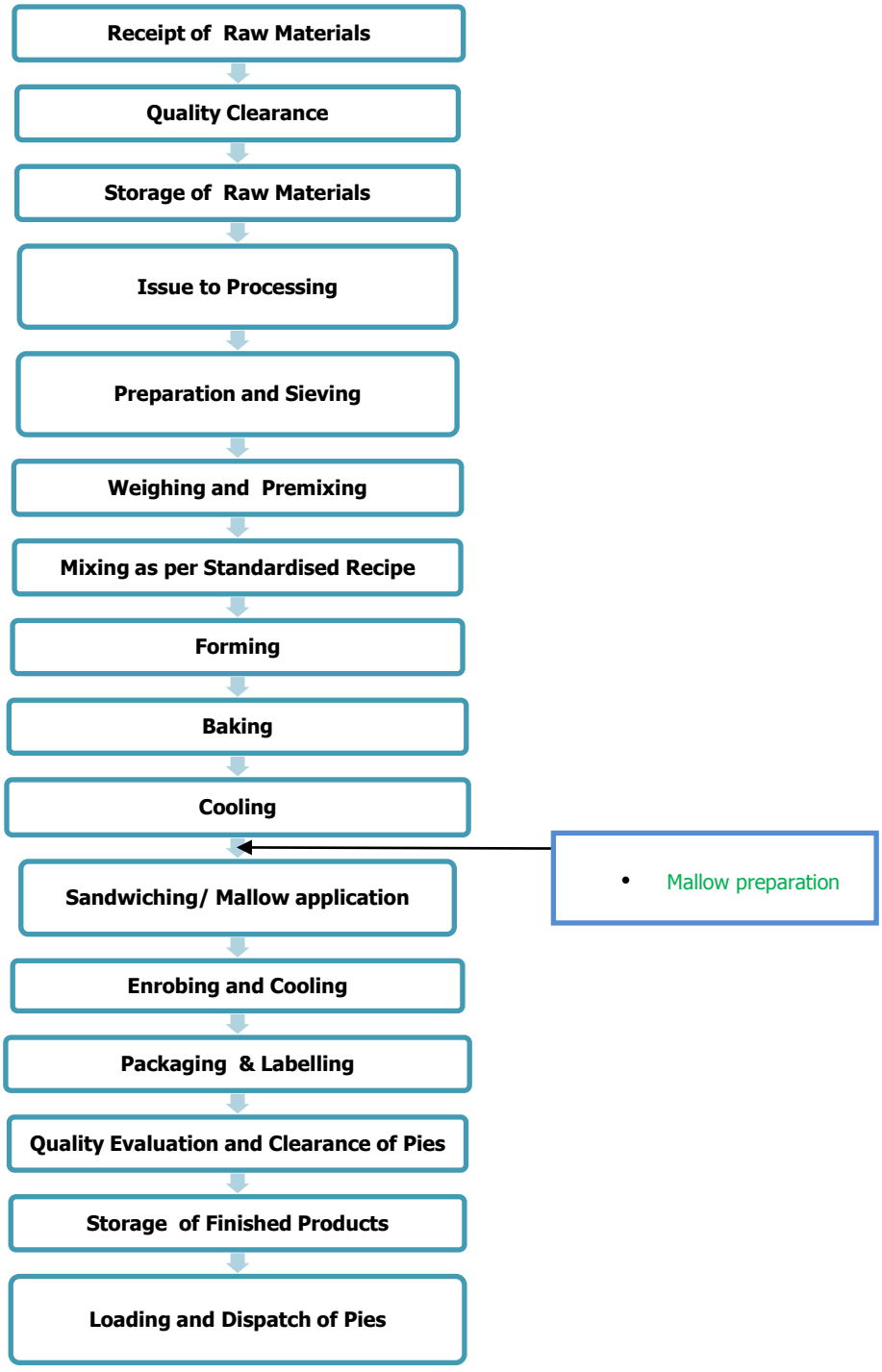
2. HACCP Plan for Biscuits & Pies

2.1 Process Flow Chart

2.1.1 Biscuits



2.1.2 Pies


Receipt of Raw Materials
Quality Clearance
Storage of Raw Materials
Issue to Processing
Preparation and Sieving
Weighing and Premixing
Mixing as per Standardised Recipe
Forming
Baking
Cooling
Sandwiching/ Mallow application
Mallow preparation
Enrobing and Cooling
Packaging & Labelling
Quality Evaluation and Clearance of Pies
Storage of Finished Products
Loading and Dispatch of Pies

2.2 Hazard Analysis & Identification for Biscuits & Pies

Sl. No.	List of Manufacturing/ Process Steps / (sequential)	Possible Physical Hazards	Possible Chemical Hazards	Possible Biological Hazards	Possible Allergens	Control Measures
1.	**Receiving ingredients:**					
	Dry material in gunny bags or plastic containers	Foreign bodies like Metal, Jute, Thread, Hair, Stone, Glass, Cement, Black Particles, Rice Husk	Vehicle grease	Weevils, Larvae, Insects	Nuts, Eggs, Gluten	Conduct inspection, effective Allergen management plan, periodic testing
	Liquid in drums	Wood, Plastic			Milk	Conduct inspection
2.	**Ingredient Storage:**					
	Cocoa Powder, Butter, Flour, Essences, Egg	Foreign bodies like Metal, Jute, Thread, Hair, Stone, Glass, Cement, Black Particles	Cross contaminatio n cleaning or non-food chemicals	Rodents, pests and insects, fungal growth in case of damp storage environment, fermentation	Nuts, Eggs, Gluten and Milk	Maintain hygienic storage condition, effective Allergen management plan
3.	**Pre-Mixing:**					
	Flour sifting	Thread, Hair, Stone, Glass, Plastic,		Weevil, Larvae	Gluten	Sifting of flour, sieve integrity checks, magnet strength check, periodic testing
	Sugar passing through magnetic grill	Metal etc				Magnetic grill
	Egg breaking	Egg shell		Pathogens like Salmonella etc	Egg	Addition of Egg whisk through egg shell sieve, COA of vendor
	Preparation of colour solution		Colour concentration beyond acceptable limit			Check for acceptable limit
	Water testing	Sand	All heavy metals, pesticides and radioactive substances	Coliforms, E Coli		Periodic water quality testing and RO/ UV system singularly or in combination
4.	**Mixing of ingredients:**					
	Addition of materials in mixer	Thread, Hair, Stone, Glass, Plastic	Grease		Nuts, Milk, wheat flour, soya lecithin	Sifting of all ingredients and Cleaning of all parts of mixer, effective Allergen management plan
	Addition of Egg whisk	Egg shell		Pathogens like Salmonella etc	Egg	Addition of Egg whisk through egg shell sieve, COA of vendor

5.	**Baking:**					
		Metal	Grease	Microbial contamination		Passing through metal detectors, Baking at proper temperature and time to avoid microbial growth, periodic moisture check to control water activity and regular cleaning of the oven
6.	**Cooling:**					
				Microbial contamination, pest and insect infestation		PRP and regular air quality check, Infestation Control programs
7.	**Cream/ Mallow Preparation and application and/ or Enrobing**	Hair, Metal and other Foreign matters	Cleaning chemical residues	Yeast and Mold, E Coli	Milk, Soya	Metal detector for sandwiches, GHP controls, sieves, cleaning programs, Vendor COA, Microbial testing for FG, Allergen management plan
8.	**Packing:**					
			Grease, solvent odour	Infestation, Aerial contamination		Usage of Food Grade lubricants on Food contact surface, seal integrity control, vendors certificate C0A on overall migration, infestation control program
9.	**Storing:**					
			Cross contamination from Non-food chemicals			Maintain hygienic storage condition.
10.	**Loading and Dispatch:**					
			Grease			Inspection of vehicle

2.3 HACCP Implementation Plan for Biscuits & Pies

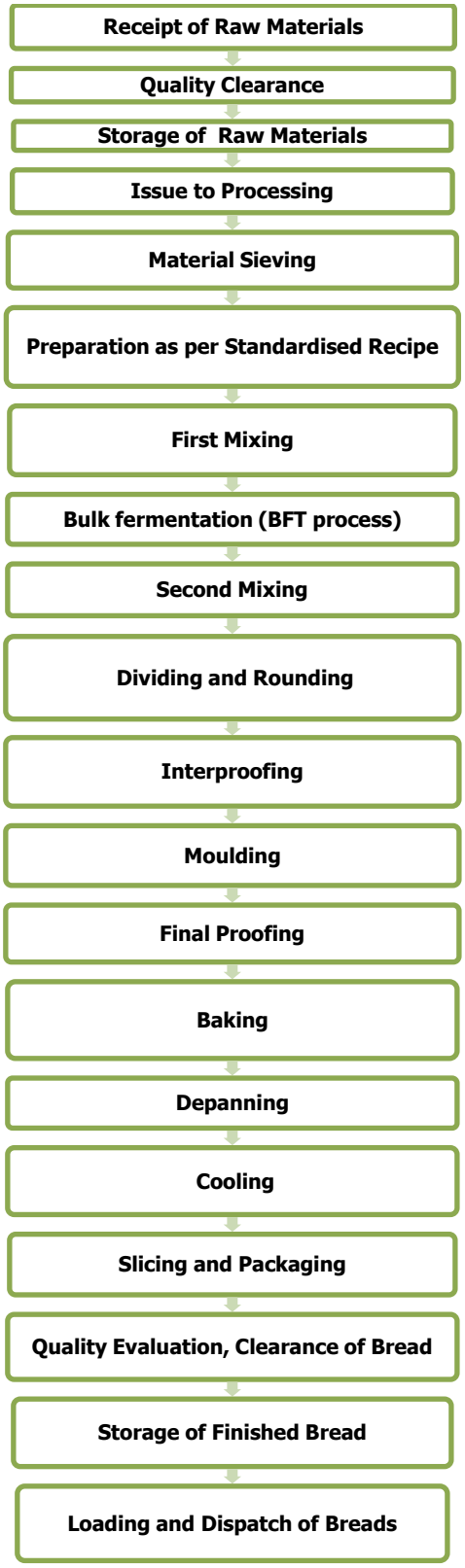
Step	Hazards	Control Measures / CCP	Critical Limit	*Monitoring*			Corrective action	Verification Responsibility	Records
				Procedure	Frequency	Responsiility			
Ingredient Receiving	Foreign bodies like Metal, Jute, Stone, Glass, Cement	Carrier Inspection, Sieving and Magnet	Nil	Visual Checking and integrated controls	Every consignment	Stores Supervisor	Reject, if not found OK	QA team	Incoming check records
Ingredient Storage	Off odour, infestation and fermentation	Physical inspection, Counts on traps	Absent	Monitoring of Cold room temperature Infestation control program, vendor declaration, periodic fumigation of strategist locations	Every 24 hours temp check, once in 3 months or internally defined fumigation plan	Stores Supervisor, Pest Control Agency	Reject or re-fumigate, if not found OK	QA team	Physical inspection and storage temperature, pest control records
Pre-Mixing	Thread, Weevils, Larvae	Physical inspection through sieving in BSS 36 mesh or internally defined size for ingredients	Absent	Checking condition of sieve and use of proper sieve size	Every 24 hours or internally defined frequency	Production Supervisor	Immediate replacement of damaged sieve,. Checking of sieved material Proper disposal of material collected on sieve	QA team	Sieve checklist
	Colour beyond acceptabl	Assurance of colour	As per recipe	Weight checking for approp	Once in a week	Production Supervisor	Rejection or dilution of colour	QA team	Colour preparation

	e limit	quantity		riate quantity			solution		record
Mixing	Hair, Thread etc	Sieving of material	Nil	Checking of sieve	Every 24 hours	Production Supervisor	Replacement of damaged sieve and rechecking of sieved materials	QA Team	Sieve checklist
	Egg shell	Sieving of Egg	Nil	Checking of sieve	Every 24 hours	Production Supervisor	Replacement of damaged sieve and rechecking of sieved materials	QA Team	Sieve checklist
Baking	Microbial contamination	Proper maintenance of baking time and temperature	Nil	Checking of Baking time and temperature, moisture check	Twice in each shift or internally defined frequency	Production Supervisor or Line Inspector	Stoppage of Production and rejection of production	QA Team	Baking time, temp, moisture records
Cooling	Microbial contamination	Microbial count	Within acceptable limit	Daily air sampling, ozone dosage check, UV interlock checks	Once in 24 hours or internally defined frequency	QA Team	Stoppage of Production and thorough fumigation	QA Manager	Microbiology records
Cream/ Mallow Preparation and application and/ or Enrobing	Physical and microbial contamination	GHP plan, Lint rollers, Metal Detector Yeast and Mold, E Coli	Nil Within specified limits	GHP checklist, MD verificationMicrobial testing	As per internally defined frequency	QA Team		QA Manager	GHP, CCP records, Microbiology records

Packing	Aerial contamination due to Improper packing	Air counts	As per defined internal limits	Microbial testing	Every day on line	Packing Supervisor	Rejection of Product	QA Team	Microbial lab records
	Improper sealing	Physical observation	Absent	Visual inspection/Vacuum leak test	Every shift on line	Packing Supervisor	Packing machine to be stopped and rectified .Recycling of defective packets	QA Team	Packing machine VLT records
	Grease and Solvents	Physical and Sensorial	Absent	Visual Inspection and Migration reports	As defined internally	QA Team	Reject if found not Ok	QA Manager	Packaging records and migration reports

3. HACCP Plan for Bread

3.1 Process Flow Chart for Bread



3.2 Hazard Analysis & Identification for Bread

S. No.	List of Manufacturing/ Process Steps / (sequential)	Possible Physical Hazards	Possible Chemical Hazards	Possible Biological Hazards	Possible Allergens	Control Measures
1.	**Receiving ingredients:**					
	Dry in gunny bags or plastic containers	Foreign bodies like Metal, Jute, Thread, Hair, Stone, Glass, Cement, Black Particles, Rice Bran	Vehicle grease	Weevils, Larvae, Insects	Wheat	Conduct inspection
	Liquid in drums	Wood, Plastic			Milk	Conduct inspection
2.	**Ingredient Storage**:					
	Butter, Flour, Essences	Unacceptable odour due to spoilage or fermentation	Cross contamination cleaning or non-food chemicals chemicals	Rodents, pests and insects, fungal growth in case of damp storage environment		Maintain hygienic storage condition.
3.	**Pre-Mixing**					
	Flour sifting	Thread, Hair, Stone, Glass, Plastic		Weevil, Larvae	Wheat flour	Sifting of flour
	Water testing		Arsenic			Periodic water quality testing
4.	**Mixing of ingredients**					
	Addition of materials in mixer	Thread, Hair, Stone, Glass, Plastic	Grease		Milk, wheat flour	Sifting of all ingredients and Cleaning of all parts of mixer.
		Dirt, Dust				Periodic cleaning of batter rollers
5.	**Proofing**					
		Dirt, Dust		Insects and pests		Clean prooving area regularly
6.	**Baking**					
		Metal	Grease	Microbial contamination		Passing through metal detectors, Baking at proper temperature and time to avoid microbial growth and Regular cleaning of the oven
7.	**Cooling**					
				Microbial contamination, pest and insect infestation		PRP and regular air quality check
8.	**Slicing**					
		Dust and Dirt				Periodic cleaning of slicer blades and belts
9.	**Packing**					
				Aerial contamination		
10.	**Storing**					
			Cross contamination from Non-food chemicals			Maintain hygienic storage condition.

11.	**Loading and Dispatch**					
			Grease			Inspection of vehicle

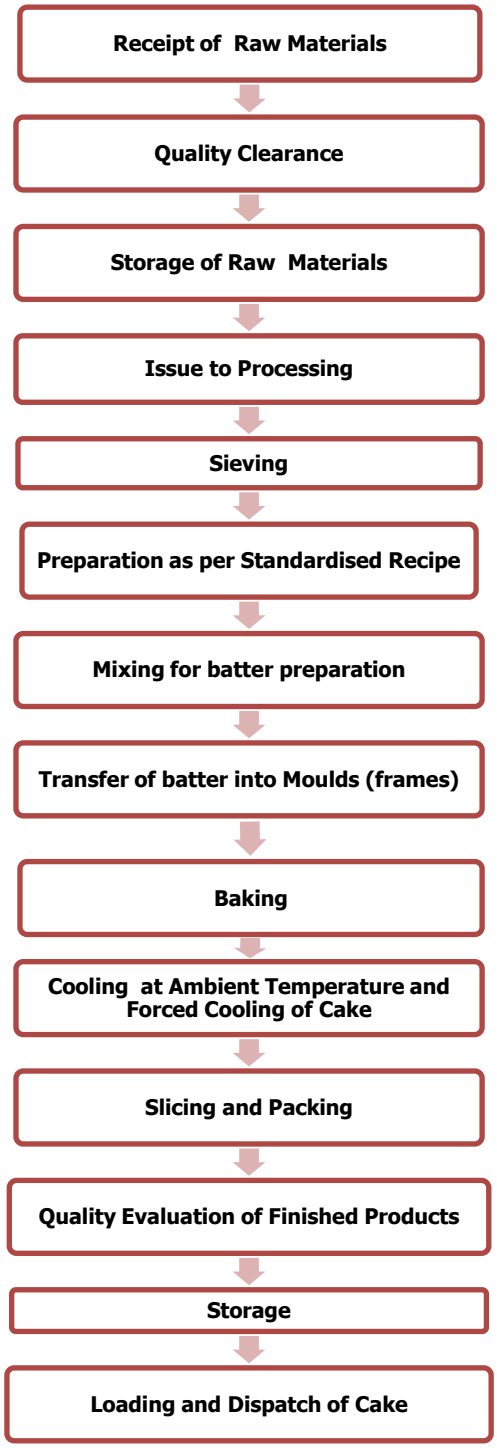
3.3 HACCP Implementation Plan for Bread

Step	Hazards	Control Measures /CCP	Critical Limit	*Monitoring*			Corrective action	Verification Responsibility	Records
				Procedure	Frequency	Responsibility			
Ingredients Receiving	Foreign bodies like Metal, Jute, Stone, Glass, Cement, etc;	Carrier Inspection	Nil	Visual Checking	Every consignment	Stores Supervisor	Reject, if not found OK	QA team	
Ingredient Storage	Off odour	Physical inspection	Absent	Monitoring of Cold room temperature and Shelf life	Every 24 hours	Stores Supervisor	Reject, if not found OK	QA team	
Pre-Mixing	Thread, Weevils, Larvae	Physical inspection through sieving in 35 mesh	Absent	Checking of sieve and use of proper sieve size	Every 24 hours	Production Supervisor	1.Immediate replacement of damaged sieve, and checking of sieved material 2. Proper disposal of material collected on sieve	QA team	
Mixing	Hair, Thread etc	Sieving of material	Nil	Checking of sieve	Every 24 hours	Production Supervisor	Replacement of damaged sieve and recheck	QA Team	

							ing of sieved materials		
Proofing	Dirt, Dust	Visual Inspection	Nil	Visual Checking	Every consignment	Production Supervisor	Reject, if not found OK	QA team	
Baking	Microbial contamination	Proper maintenance of baking time and temperature	Nil	Checking of Baking time and temperature	Twice in each shift	Production Supervisor	Stoppage of Production and rejection of production	QA Team	
Cooling	Microbial contamination	Microbial count	Within acceptable limit	Daily air sampling	Once in 24 hours	QA Manager	Stoppage of Production and thorough fumigation	QA Team	
Slicing	Dirt and dust, Microbial contamination	Swab test	Absent	Swab test of slicing blades	Thrice in a week	QA Manager	Ensure proper cleaning	QA Team	
Packing	Aerial contamination due to Improper packing	Physical observation	Absent	Visual inspection	Every day on line	Packing Supervisor	Rejection of Product	QA Team	
	Improper sealing	Physical observation	Absent	Visual inspection	Every day on line	Packing Supervisor	1.Packing machine to be stopped and rectified 2.Recycling of defective packets	QA Team	

4. HACCP Plan for Cakes

4.1 Process Flow Chart for Cakes



4.2 Hazard Analysis & Identification for Cakes

S.No.	List of Manufacturing/ Process Steps / (sequential)	Possible Physical Hazards	Possible Chemical Hazards	Possible Biological Hazards	Possible Allergens	Control Measures
1.	**Receiving ingredients:**					
	Dry in gunny bags or plastic containers	Foreign bodies like Metal, Jute, Thread, Hair, Stone, Glass, Cement, Black Particles, Rice Bran	Vehicle grease	Weevils, Larvae, Insects	Nuts, Eggs, Wheat	Conduct inspection
	Liquid in drums	Wood, Plastic			Milk	Conduct inspection
	Fruits that are cut	Seeds				Visual Inspection
2.	**Ingredient Storage:**					
	Cocoa Powder, Butter, Flour, Essences	Unacceptable odour due to spoilage or fermentation	Cross contaminatio n cleaning or non-food chemicals chemicals	Rodents, pests and insects, fungal growth in case of damp storage environment	Nuts,eggs, Wheat and Milk	Maintain hygienic storage condition.
3.	**Pre-Mixing**					
	Flour sifting	Thread, Hair, Stone, Glass, Plastic		Weevil, Larvae	Wheat flour	Sifting of flour
	Sugar passing through magnetic grill	Metal				Magnetic grill
	Egg breaking	Egg shell			Egg	Addition of Egg whisk through egg shell siever
	Preparation of colour solution		Colour concentration beyond acceptable limit			Check for acceptable limit
	Water testing		Arsenic			Periodic water quality testing
4.	**Mixing of ingredients**					
	Addition of materials in mixer	Thread, Hair, Stone, Glass, Plastic	Grease		Nuts, Milk, wheat flour	Sifting of all ingredients and Cleaning of all parts of mixer.
	Addition of Egg whisk	Egg shell			Egg	Addition of Egg whisk through egg shell siever
5	**Batter scaling and levelling**					
		Dirt, Dust				Periodic cleaning of batter rollers
6.	**Baking**					
		Metal	Grease	Microbial contamination		Passing through metal detectors, Baking at proper temperature and time to avoid microbial growth and Regular

						cleaning of the oven
7.	**Cooling**					
				Microbial contamination , pest and insect infestation		PRP and regular air quality check
8.	**Slicing**					
		Dust and Dirt				Periodic cleaning of slicer blades and belts
9.	**Packing**					
				Aerial contamination		
10.	**Storing**					
			Cross contamination from Non-food chemicals			Maintain hygienic storage condition.
11.	**Loading and Dispatch**					
			Grease			Inspection of vehicle

4.3 HACCP Implementation Plan for Cakes

tep	Hazards	Control Measures /CCP	Critical Limit	*Monitoring*			Corrective action	Verification Responsibility	Records
				Procedure	Frequency	Responsibility			
Ingredients Receiving	Foreign bodies like Metal, Jute, Stone, Glass, Cement, etc;	Carrier Inspection	Nil	Visual Checking	Every consignment	Stores Supervisor	Reject, if not found OK	QA team	
Ingredient Storage	Off odour	Physical inspection	Absent	Monitoring of Cold room temperature and Shelf life	Every 24 hours	Stores Supervisor	Reject, if not found OK	QA team	
Pre-Mixing	Thread, Weevils, Larvae	Physical inspection through sieving in 35 mesh	Absent	Checking of sieve and use of proper sieve size	Every 24 hours	Production Supervisor	1.Immediate replacement of damaged sieve, and checking of sieved material 2. Proper disposal of material collected on sieve	QA team	
	Colour beyond acceptable limit	Assurance of colour quantity	As per recipe	Weight checking for appropriate quantity	Once in a week	Production Supervisor	Rejection or dilution of colour solution	QA team	
Mixing	Hair, Thread etc	Sieving of material	Nil	Checking of sieve	Every 24 hours	Production Supervisor	Replacement of damaged sieve and rechecking of sieved materials	QA Team	
	Egg shell	Sieving of	Nil	Checking of	Every 24	Production	Replacement of	QA Team	

		Egg		sieve	hours	Supervisor	damaged sieve and rechecking of sieved materials		
Baking	Microbial contamination	Proper maintenance of baking time and temperature	Nil	Checking of Baking time and temperature	Twice in each shift	Production Supervisor	Stoppage of Production and rejection of production	QA Team	
Cooling	Microbial contamination	Microbial count	Within acceptable limit	Daily air sampling	Once in 24 hours	QA Manager	Stoppage of Production and thorough fumigation	QA Team	
Slicing	Dirt and dust, Microbial contamination	Swab test	Absent	Swab test of slicing blades	Thrice in a week	QA Manager	Ensure proper cleaning	QA Team	
Packing	Aerial contamination due to Improper packing	Physical observation	Absent	Visual inspection	Every day on line	Packing Supervisor	Rejection of Product	QA Team	
	Improper sealing	Physical observation	Absent	Visual inspection	Every day on line	Packing Supervisor	1.Packing machine to be stopped and rectified 2.Recycling of defective packets	QA Team	

D. INSPECTION CHECKLIST

Date		**FBO Name**	
Food Safety Officer		**FBO's representative**	
FBO License No.		**Address**	

Indicate the following – Compliance (C), Non Compliance (NC), Partial Compliance (PC) or Not Applicable (NA)

S. No.	Audit Question	Scoring	
1	Food establishment has an updated FSSAI license and is displayed at a prominent location.	**2**	
I	**Design & facilities**		
2	The design of food premises provides adequate working space; permit maintenance & cleaning to prevent the entry of dirt, dust & pests.	**2**	
3	The internal structure & fittings are made of non-toxic and impermeable material.	**2**	
4	Walls, ceilings & doors are free from flaking paint or plaster, condensation & shedding particles.	**2**	
5	Floors are non-slippery & sloped appropriately.	**2**	
6	Windows are kept closed & fitted with insect proof screen when opening to an external environment.	**2**	
7	Doors are close fitted to avoid entry of pests.	**2**	
8	Equipment and containers are made of non-toxic, impervious, non- corrosive material which is easy to clean & disinfect.	**2**	
9	Premise has sufficient lighting.	**2**	
10	Adequate ventilation is provided within the premises.	**2**	
11	Adequate storage facility for food, packaging materials, chemicals, personnel items etc available.	**2**	
12	Personnel hygiene facilities are available. (Adequate number of hand washing facilities, toilets, change rooms, rest & refreshment room etc).	**2**	
*13**	*Potable water (meeting standards of IS:10500) is used as a product ingredient or in contact with food or food contact surface & tested for quality semi annually. Check for records.*	*4*	
14	Food material is tested either through internal laboratory or through an accredited lab. Check for records.	*2*	
14	Food material is tested either through internal laboratory or through an accredited lab. Check for records.	*2*	
II	**Control of operation**		
15	Incoming material procured as per internally laid down specification &from an approved vendors. Check for records (like specifications, name and address of the supplier, batch no., quantity procured etc).	**2**	
16	Raw materials is inspected at the time of receiving for food safety hazards.	**2**	
17	Incoming material, semi or final products are stored according to their temperature and humidity requirement, in a hygienic environment. FIFO & FEFO is practised.	**2**	
*18**	*Requisite time and temperature is being achieved, maintained, monitored & recorded while manufacturing/processing. Check for records.*	*4*	
19	Food manufactured/processed is packed in a hygienic manner.	2	
20	Packaging materials is food grade & in sound condition.	**2**	
21	Cleaning chemicals & other hazardous substance are clearly identified &stored separately from food.	**2**	
22	Transporting vehicle for food use are kept clean and maintained in good repair.	**2**	
23	Transporting vehicle are capable of meeting requisite temperature (where applicable).	**2**	
24	Recalled products are held under supervision & destroyed or reprocessed/reworked in a manner to ensure their safety. Check for records.	**2**	

III	**Maintenance & sanitation**		
25	Cleaning of equipment, food premises is done as per cleaning schedule & cleaning programme.	**2**	
26	Preventive maintenance of equipment and machinery are carried out regularly as per the instructions of the manufacturer.	**2**	
27	Measuring & monitoring devices are calibrated periodically.	**2**	
28*	*Pest control program is available & pest control activities are carried out by trained and experienced personnel. Check for records.*	*4*	
29	No signs of pest activity or infestation in premises (eggs, larvae, faeces etc.)	2	
30	Drains are designed to meet expected flow loads and equipped with traps to capture contaminants.		
31	Food waste and other refuse are removed periodically from food handling areas to avoid accumulation.	**2**	
32	Disposal of sewage and effluents is done in conformity with standards laid down under Environment Protection Act, 1986.	**2**	
IV	**Personal Hygiene**	**2**	
33	Annual medical examination & inoculation of food handlers against the enteric group of diseases as per recommended schedule of the vaccine is done. Check for records.	**2**	
34	No person suffering from a disease or illness or with open wounds or burns is involved in handling of food or materials which come in contact with food.	**2**	
*35**	*Food handlers maintain personal cleanliness (clean clothes, trimmed nails &water proof bandageetc) and personal behaviour (hand washing, no loose jewellery, no smoking, no spitting etc).*	*4*	
36	Food handlers equipped with suitable aprons, gloves, headgear, shoe cover etc; wherever necessary.	2	
V	**Training & Complaint Handling**		
37	Internal / External audit of the system is done periodically. Check for records.	2	
38	Food business has an effective consumer complaints redressal mechanism.	**2**	
39	Food handlers have the necessary knowledge and skills & trained to handle food safely. Check for training records.	**2**	
*40**	*Appropriate documentation & records are available and retained for a period of one year or the shelf-life of the product, whichever is more.*	*4*	

Total points ...../90

Asterisk mark (*) questions may significantly impact food safety & therefore must be addressed as a priority. Failure in any of the asterisk mark (*) questions, will lead to Non-compliance

Grading –

☐	A^+	85-90	Compliance – Exemplar
☐	A	80-84	Compliance/Satisfactory
☐	B	60-79	Needs Improvement
☐	No grade	<60	Non Compliance

E. PROFORMAS

1. Mandatory Proformas

1.1 Medical Fitness Certificate for Food handlers

PERFORMA FOR MEDICAL FITNESS CERTIFICATE FOR FOOD HANDLERS

(FOR THE YEAR .....)

(See Para No. 10.1.2, Part- II, Schedule - 4 of FSS Regulation, 2011)

It is certified that Shri/Smt./Miss..... employed with M/s....., coming in direct contact with food items has been carefully examined* by me on date ..... Based on the medical examination conducted, he/she is found free from any infectious or communicable diseases and the person is fit to work in the above mentioned food establishment.

Name and Signature with Seal
of Registered Medical Practitioner /
Civil Surgeon

***Medical Examination to be conducted:**

1. Physical Examination
2. Eye Test
3. Skin Examination
4. Compliance with schedule of Vaccine to be inoculated against enteric group of diseases
5. Any test required to confirm any communicable or infectious disease which the person suspected to be suffering from on clinical examination.

1.2 Form E – Form of Guarantee

FORM E

Form of Guarantee

Date of sale	Nature and quality of article/brand name, if any	Batch No. or Code No.	Quantity	Price
1	2	3	4	5

Invoice No. _____ Place:_____

From: _____ Date:_____

To: _____

I/We hereby certify that food/foods mentioned in this invoice is/are warranted to be of the nature and quality which it/ these purports/purported to be.

Signature of the

Manufacturer/Distributor/Dealer

Name and address of

Manufacturer/Packer

(in case of packed article)

License No. (wherever applicable)

2. Recommendatory Proformas

2.1 Approved Supplier List

S.No.	Item/Material Name	Location of Use	Primary Approved Supplier (Name & complete address)					Secondary Approved Supplier (Name & complete				
			Complete Address	*Contact Person*	*Contact No.*	*Email id*	*Fax*	*Complete Address*	*Contact Person*	*Contact No.*	*Email id*	*Fax*

2.2 Incoming Vehicle Inspection Record

Date of Incoming Vehicle:
Vehicle Type:
Material in Vehicle received:
Number of Persons accompanying Driver:

PARAMETER EVALUATED	REMARKS
Security lock	
Type of carrier (full covered/ Open Roof)	
Mode of covering products (in case of Open Roof)	
Overall Hygiene in the interior	
Overall Hygiene on the exterior	
Any sharp edges / points in the interior of vehicle	
Any pests detected	
Any grease /oil detected	

Authorized Singature

2.3 Incoming Material Inspection

Includes all type: *Raw materials, Ingredients, Food addiitives, Processing aids, Packaging materials, Cleaning and sanitation chemiclas, etc.*

Material Name:	
Supplier Name:	
Identification/Location of Supplier:	
Quanity received:	
Pack size received:	
Material Receipt Date:	
Transport Mode:	
Rejected (Yes/No):	
Reason for Rejection:	

PARAMETER EVALUATED	STATUS/RESULTS	Signature
Temperature (Degree Celsius)		
Visual Inspection Condition (OK/Not OK)		
Packaging & Labelling Condition (OK/Not OK)		
Production Date/Shelf Life Date/Expiry Date		
Vehicle Inspection Condition (OK/Not OK)		
Quality Lab Results (If applicable)		
Certificate Of Analysis (COA) received (Yes/No)		
Remarks		
Clearannce Date		
Authorized Signatore		

2.4 Operation Log Sheet (Template for Temperature Control)

S.No.	Date	Time	Temp. Gauge Number	Specification / Range allowed	Actual Result	Remarks	Sign

2.5 Product Release Record

Name of Product:	
Date of Manufacturing:	
Time of Manufacturing:	
Batch/Lot No.:	
Best Before/ Expiry Date:	
Quality Acceptance	
Analytical	
Microbiological	
Sensory	
Others, if any	
Quality Lab signature	

2.6 Non-conforming Material/Product

HOLD: ☐ **REJECT:** ☐

Material Type:

Finished Product ☐ Raw Material ☐

In-Process Product ☐ Packaging Material ☐

Material Name:
Date of Manufacturing/Receipt:
Quantity of Manufacturing/Receipt:
Lot/Batch No.
Quantity used:
Lot/Batch No.
Quantity Hold:
Lot/Batch No.
Quantity Rejected:
Lot/Batch No.

Reason for Hold:
Reason for Rejection:

Corrective Action:
Preventive Action:

Remarks:

Signature:
QC Executive *Quality Manager* *Mfg. Manager*

2.7 Rework Record

Batch No	Date	Qty	Material	Source	Time	Finished Product

2.8 Outgoing Vehicle Inspection Record

Date of Outgoing Vehicle:
Vehicle Type:
Material in Vehicle to be dispatched:
Date of Manufacturing:
Time of Manufacturing:
Batch/Lot No.:
Number of Persons accompanying Driver:

PARAMETER EVALUATED	REMARKS
Security lock	
Type of carrier (full covered/ Open Roof)	
Mode of covering products (in case of Open Roof)	
Overall Hygiene in the interior	
Overall Hygiene on the exterior	
Any sharp edges / points in the interior of vehicle	
Any pests detected	
Any grease /oil detected	

Authorized Singature

2.9 Product Recall record

S.No.	Date of Complaint	Nature of Complaint	Results of Investigation	Product / Batches & quantity recalled	Mode of Disposal

2.10 Product Identification and Traceability

Traceability Detail Format

Product Description

Plant Name: Manufacturing Date:
Product Name: Manufacturing Time:
Pack Size: Batch/Lot no.:

Traceability Details

Investigation Date: InvestigationTime End:
InvestigationTime Start: Total Time Taken:

A. CIP Details

Equipment Name	CIP Details			Remarks
	Date	Time	Person responsible	

B.Ingredient Details

Material Description		Remarks
Name	Batch/Lot No.	

C. Water Treatment Details

Chemical/Material Description		Remarks
Name	Batch/Lot No.	

D. Primary Packaging

Material Description		Remarks
Name	Batch/Lot No.	

E.Manufacturing Details

Date	Shift	Cases Manufactured	CCP Compliance	Remarks

F. Analytical Details

Date	Shift	Analytical compliance%	Product blocked,if any	Remarks

G.Dispatch Details

Invoice No.	Date of Dispatch	Quanity Dispatched= Total produced-(Rejected+ Control samples+ Warehouse retained)	Dispatch Destination	Remarks

2.11 List of Monitoring and Measuring Devices and Records of Calibration

S.No.	Name of Equipment	ID.No.	Location	Range	Least Count	Frequency of Calibration	In house calibration Done On	In house calibration Due On	Remarks	Sign

2.12 Preventive Maintenance Schedule

S.No.	Name of Machine/ Equipment	Code/ Identification No.	Specification /Supplier	Location of place of the Machine/ Equipment	Frequency of check					Remarks
					Daily	Weekly	Monthly	Half Yearly	Yearly	

2.13 Preventive Maintenance Record

Machine/Equipment Name.:
Machine/Equipment No.:
Location:

S.No.	Maintenance Check Point	Frequency of check					Signature	Remarks
		Daily	Weekly	Monthly	Half Yearly	Yearly		

2.14 Pest Management Plan

Type of Pest	Mode of Control	Station (locations) monitored	Number designated	Frequency of Monitoring	Remarks

2.15 Pest monitoring record

Date	Type of Pest	Mode of Control	Station (locations) monitored	Number designated	Frequency of Monitoring	Clean (ok/Not ok)	Remarks	Sign

2.16 Monitoring of Personnel hygiene

Date:

S.No.	Employee Code	Employee name	Area of work	Hand wash, sanitize (and Gloves where necessary)	Clean & trimmed Nails	No open Wounds	No Jewellery	Covered Hair	Clean outer garments / protective clothing	Clean Shoes/ shoe covers	Infectious Disease / Skin infection / Allergy, if any	No Tobacco/ Smoking / Chewing	Overall Hygiene Status upon examination (Yes/No)	Action needed on non-compliance	Re-examination status (Yes/No)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															

Jewelllery *wrist watches, cufflinks, ear rings, glass bangles, stick bindis*

2.17 Customer/ Consumer Complaint Log

Complaint Number: _____

Date: _____ **Time recorded:** _____ ☐ **am** ☐ **pm**
Quality related: ☐ **Food safety related:** ☐

Customer Details
Customer Name: _____
Phone: _____
Address: _____ City: _____
State/Province: _____ Zip code: _____
Email: _____

Product Consumed
Product name: _____
Batch Code/Lot no.: _____
Package size: _____
Location purchased: _____
Date of purchase: _____ Date consumed: _____
How was the product stored? _____

Nature of Complaint

Foreign object	☐	Off/ Unsatisfactory Flavor	☐	Allergic	☐
Packaging	☐	Illness	☐	Others	☐

How many people consumed? _____ **Ages?** _____
Symptoms/Additional Problem Information: _____

Has the Customer
Seen a Doctor? Gone to Hospital?
Spoken to a public health? Contacted Regulatory Agency?

_____

Comments & follow up action
Feedback from client- Status or date finalized

2.18 Training Record

Date of Training:
Conducted By:
Subject of Training:
Brief summary of the subject:
Duration of Training:

S.No.	Name of person trained	Functional area	Remarks	Signature
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

2.19 Training Effectiveness record

Date of Training:
Subject of Training:
Brief summary of the subject:

S.No.	Name of person trained	Functional area	Pre-evaluation result	Post-evaluation result	Effectiveness status (Yes/No)	Comment on effectiveness	Signature of trainee
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Effectivess can be based on: Improvement in quality of work, Improvement in work output, Behavioural change, Overall usefulness of training, etc.


BE-RO Cornish Pasties
Another Kind of Pastry
BE-RO Short Pastry